

CHRONICLE OF THE WORLD HEALTH ORGANIZATION

ANTIMALARIA CO-ORDINATION IN ASIA
ACCIDENTAL DEATH AMONG CHILDREN AND ADOLESCENTS

EPIDEMIOLOGICAL AND STATISTICAL INFORMATION
REPORTS OF EXPERT GROUPS
NOTES AND NEWS
REVIEW OF WHO PUBLICATIONS



WORLD HEALTH ORGANIZATION
PALAIS DES NATIONS
GENEVA

The World Health Organization (WHO) is a specialized agency of the United Nations and represents the culmination of efforts to establish a single intergovernmental health agency. As such it inherits the functions of antecedent organizations such as the Office International d'Hygiène Publique, the Health Organisation of the League of Nations and the Health Division of UNRRA.

WHO had its origin in the proposal made at the United Nations Conference held in San Francisco in 1945 that a specialized agency be created to deal with all matters relating to health. In 1946 representatives of 61 governments met at the International Health Conference, New York, drafted and signed the WHO Constitution and established an Interim Commission to serve until the Constitution could be ratified by 26 Member States of the United Nations. The Constitution came into force on 7 April 1948; the First World Health Assembly met in Geneva in June 1948 and on 1 September 1948 the permanent Organization was established.

The work of the Organization is carried out by three organs: the World Health Assembly, the supreme authority to which all Member States send delegates; the Executive Board, the executive organ of the Health Assembly, consisting of 18 persons designated by as many Member States; and a Secretariat under the Director General.

The scope of WHO's interests and activities exceeds that of any previous international health organization and includes programmes relating to a wide variety of public health questions: malaria, tuberculosis, venereal diseases and treponematoses and other communicable diseases, maternal and child health, mental health, social and occupational health, nutrition, nursing, environmental sanitation, public health administration, professional education and training, and health education of the public. In addition, WHO undertakes or participates in certain technical work of international significance, such as the compilation of an international pharmacopoeia, the setting up of biological standards and of standards for insecticides and insecticide spraying equipment, the control of addiction-producing drugs, the exchange of scientific information, the drawing up of international sanitary regulations, the revision of the international lists of diseases and causes of death, the collection and dissemination of epidemiological information, and statistical studies on morbidity and mortality.

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CHRONICLE OF THE WORLD HEALTH ORGANIZATION

CONTENTS

	Pages
Antimalaria co-ordination in Asia	3
Accidental death among children and adolescents	6
Epidemiological and Statistical Information	
Mortality from arteriosclerosis	10
Reports of Expert Groups	
Veterinary public health	12
Diagnosis and typing in leptospirosis	14
Notes and News	
Health services in the Seychelles	15
Antituberculosis campaign in the Sudan	16
African seminar on vital and health statistics	16
World Health Day 1957	17
Mental health work in Jordan	17
Africa lacks nurses	17
Death of Dr Louis Fundlay	18
Appointment of new WHO Representative to UNRWA	18
Review of WHO Publications	19

SCHEDULE OF MEETINGS

7 12 January	Standing Committee of the Executive Board on Administration and Finance, Geneva
14-20 January	WHO Tuberculosis Workers Conference New Delhi
15 26 January *	Nineteenth session of the Executive Board, Geneva
21 26 January	Seminar on Application of International Sanitary Regulations Maracay
31 March 13 April	Regional Training Course on Rabies Caracas
7 May 24 May *	Tenth World Health Assembly, Geneva
27 31 May *	Twentieth session of the Executive Board Geneva

Termination dates are tentative

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ANTIMALARIA CO-ORDINATION IN ASIA

What may prove to be a significant step forward in Asia's fight against malaria was taken in Saigon in November 1956 when the first meeting of the Antimalaria Co-ordination Board was held. Here for the first time Government representatives from the Board's five Member States (Burma, Cambodia, Laos, Thailand and Viet Nam) charted out a course which is designed to lead towards closer co-ordination between the participating countries and the establishment of permanent antimalaria services with adequate support to ensure their success.

The Antimalaria Co-ordination Board came into being as a direct result of a recommendation made by the WHO sponsored Inter-country Malaria Conference which was held in Phnom Penh in January 1956. The report of the Board's first meeting reveals that Member States have all made positive progress in national antimalaria work, although as is understandable the antimalaria services are in different stages of development. The programmes however in all the participating countries are similar in planning for malaria eradication by nationwide house spraying campaigns directed principally against *Anopheles minimus* as their common major vector of malaria. All countries report that the use of DDT applied with compression sprayers has been generally effective. However in some areas it is proposed that the spraying campaigns will be supplemented by a programme of malaria treatment. Large scale activities are also planned in technical surveys for guidance and evaluation, technical training and public information.

In Thailand a permanent division of malaria control in the national public health services has been established and the house spraying campaign begun in 1950 has now reached virtually all malarious areas throughout the country. Similarly Burma has a well organized antimalaria service and the

campaign there is expected to cover practically all malarious areas in 1957. Cambodia, Laos and Viet Nam are at present in the early phase of establishing permanent services. The present status of the antimalaria programme is revealed by the following table taken from the Board's report.

Country	Total population	Population in malarious areas	Population in areas given protection
Burma	18 000 000	8 000 000	6 300 000
Cambodia	4 500 000	800 000	411 000
Laos	3 000 000	2 000 000	
Thailand	20 000 000	11 000 000	10 600 000
Viet Nam	12 100 000	4 500 000	*
Total	57 600 000	26 300 000	17 311 000

* Newly planned malaria eradication programmes are just beginning in Laos and Viet Nam.

The detailed results obtained by the various Member States show that considerable progress has been made towards malaria eradication. Burma and Thailand have had excellent results in the reduction of *Anopheles minimus* and malaria in practically all of the areas DDT sprayed for about three successive years. Cambodia and Viet Nam also report excellent results in the reduction of malaria following DDT house spraying campaigns although in certain areas population movements have created special control problems. Laos is now entering upon a newly revised programme of malaria eradication conditions are generally similar to those in Thailand with limited areas experiencing some of the problems associated with Cambodia and Viet Nam.

Planning long term programmes

Although these results achieved on a national scale are eminently satisfactory the report emphasizes that malaria eradication to be effective requires permanent national antimalaria services with well

developed plans for an intensive campaign of relatively few years to eliminate the disease followed by a long term programme to prevent its reappearance. Provision must also be made for adequate staff and budget to implement both phases of any eradication programme. The report refers to difficulties experienced by the five countries in recruiting and retaining antimalaria workers and, also the budgetary problems which are inescapable in such large scale field programmes. However as the Board points out the present time is particularly favourable for nation wide eradication campaigns when assistance from WHO the United Nations and the United States International Cooperation Administration is available.

Quite apart from the problems relating to the over all management and control of malaria eradication campaigns there are also certain special difficulties which apply particularly to the five countries concerned

One of these is the practice of agricultural workers occupying temporary shelters in plantations during the periods of cultivation. In these shelters they are exposed to malaria and it is extremely difficult to locate and spray such temporary dwellings. The structures also are usually too open for effective sprayed surfaces on which the malaria vector may rest. Another problem is that of transportation as it is found that in parts of Cambodia the most technically effective period for house spraying unfortunately coincides with the most unfavourable season for field operations due to weather conditions.

Resistance of malaria vectors to insecticides

In discussing the question of vector problems the Board's report supplies some interesting information. None of the participating countries it is stated found evidence



Antimalaria measures in Thailand Searching for larvae in irrigation ditches in the Chuengmai Valley

Spraying the walls of a
Thai temple



of resistance in any of its actual or potential malaria vector species. However *A. sundanicus* is involved in malaria transmission in coastal areas of all the five countries with the exception of Laos. This species was shown in certain parts of Indonesia to have a certain resistance to DDT although it remains susceptible to control by dieldrin. *A. leucosphyrus* has recently been found infected in two limited forested areas of Thailand. This species has also been incriminated as a malaria carrier in Burma and is considered a possible vector in Cambodia, Laos and Viet Nam. The report stresses that it should be given careful attention in work aimed at malaria eradication in the Member countries.

Since the Phnom Penh Conference in January 1956 various of the Board's Members have taken steps towards co-ordination of antimalaria work. For example representatives of Burma and Thailand met at Chiengmai in August 1956 in order to co-ordinate antimalaria work along their common frontier. Laos and Thailand are also co-ordinating antimalaria activities with

Thailand supplying technical training and consultation in the newly revised Laos malaria eradication project. Cambodia and Viet Nam are also developing plans for further co-ordination work with neighbouring countries.

In connexion with inter-country co-ordination the Board's report points out that it is essential to develop definite time schedules in the national antimalaria operations which will result in bringing adequate protection to both sides of a frontier simultaneously particularly at crucial traffic points. The Board also noted that it was of considerable interest to know precisely when the entire protection of all malarious areas could be anticipated in neighbouring countries.

At the conclusion of the Antimalaria Co-ordination Board's meeting various resolutions were adopted designed to implement and co-ordinate antimalaria work in the five countries. These dealt with inter alia the recruitment and training of malaria workers, the establishment of effective malaria reporting systems, the standardization of

procedures and the exchange of information the proposed yearly meetings of the Board and co ordination with WHO and finally a resolution extending an invitation to the Government of the Federation of Malaya

through WHO to become a member of the Board The next planned meeting of the Board will be in December 1957 in Bangkok at the invitation of the Government of Thailand

ACCIDENTAL DEATH AMONG CHILDREN AND ADOLESCENTS

Accidental death is nowadays of increasing concern to public health authorities Among children and adolescents it often rates as the leading cause of death, primarily because preventive medicine has succeeded in lowering the loss of life which previously occurred through infectious and parasitic diseases This problem of accidental death in the younger age groups has led to a desire for international investigation with the object of devising effective methods of prevention Until recently, comprehensive data on accidents in general were lacking and when the problem was raised in WHO it was felt that adequate statistical information on accidents as a factor of mortality was the first essential Accordingly WHO inaugurated a statistical investigation in a number of countries Information thus compiled has been sifted and analysed by three members of the WHO Secretariat in an article entitled 'Accident Mortality Among Children' which appears in the current issue of the *Bulletin*¹

With the proviso that statistical information of this type can only serve to give a partial picture of the whole question of accident causation the authors do nevertheless point to certain trends which emerge from the material examined It is noteworthy that accident mortality among males is consistently higher than among females with the exception of the two extremes of life where other factors come into play Noteworthy also is that between the ages of 15 and 25 the male accident death rate in Australia Canada Sweden Switzerland and the USA exceeds the female death rate from all causes and it

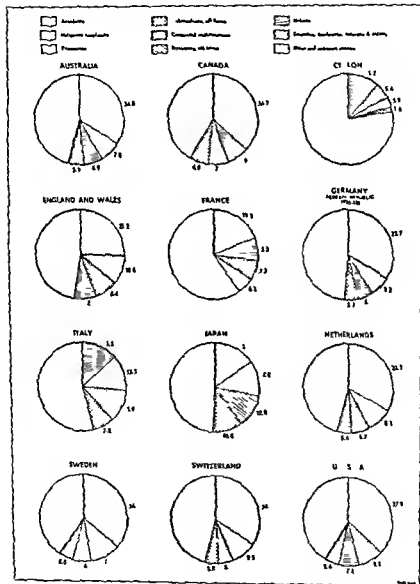
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Accidents and working life

The economic and social significance of higher accident rates should not be overlooked When mortality figures are expressed in terms of working life lost accident ranks at the top together with heart disease cancer and pneumonia Examples show that in the year 1945 in the United States working years lost through accidental death were calculated at 1 750 000 as compared with 1 680 000 for heart diseases, 1 100 000 for pneumonia and 1 040 000 for cancer Statistics for England and Wales for the year 1954 show that accident moved up to third place on the basis of working life Such causes of death as heart disease and cancer which account for more deaths at all ages than do accidents may nevertheless be less important when judged on the basis of working life as on the average the victim of a fatal accident is younger at the time of death than the heart or cancer patient

The relation of accident death rates to over all death rates in the 15-19 age group has been compared for 12 representative countries and the detailed statistics appear as Fig 1 and Table 1 The deductions which can be drawn from these statistics are illuminating For example in 9 of the 12 countries the accident mortality rate is higher than all other causes of death Of the remaining three countries two have accident mortality in second place In the diagram it is sufficiently obvious that the accident fatality sector for all countries is large in proportion to the remainder of the circle

FIG 1 PERCENTAGE OF DEATHS FROM THE FOUR LEADING CAUSES TO TOTAL DEATHS IN THE AGE GROUP 1-19 YEARS IN TWELVE COUNTRIES 1951-53



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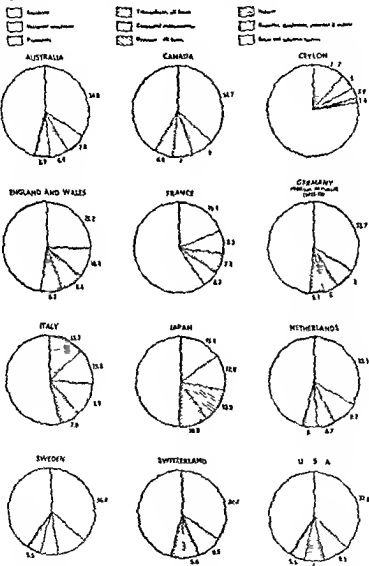


TABLE 1 PERCENTAGE OF DEATHS FROM VARIOUS CAUSES TO TOTAL DEATHS IN THE AGE GROUP 1-19 YEARS IN TWELVE COUNTRIES 1951-53

International Abbreviated List	Causes of death (Sixth Revision 1948)	Australia	Canada	Ceylon	England and Wales	France	Germany Federal Repub lic	Italy	Japan	Nether lands	Sweden	Switzer land	USA
B1+B2	Tuberculosis all forms	14	68	12	84	73	51	78	108	34	24	50	27
B5	Dysentery all forms	01	02	12	01	00	01	00	120	02	—	00	03
B8	Diphtheria	14	04	05	02	07	18	32	07	48	01	09	04
B12	Acute poliomyelitis	33	25	02	14	08	22	08	04	07	18	23	25
B16	Malaria	00	—	18	00	00	—	00	00	—	—	—	00
B18	Malignant neoplasms including neoplasms of lymphatic and haematopoietic tissues	78	74	02	108	83	72	42	13	91	111	95	91
B23	Non meningococcal meningitis	15	16	05	09	29	17	18	23	11	10	12	13
B31	Pneumonia	69	79	117	82	83	54	133	99	54	66	36	73
B34	Appendicitis	12	13	00	24	14	32	15	07	13	23	33	09
B36	Gastroenteritis enteritis and colitis	34	23	58	16	20	14	119	151	11	12	26	20
B38	Nephritis and nephrosis	23	18	15	24	13	15	26	29	13	17	17	22
B41	Congenital malformations	59	44	00	62	20	29	22	08	67	55	56	56
BE47+BE48	All Accidents	340	367	39	252	191	337	133	128	331	384	344	370
	Other or unknown causes	308	256	718	323	477	339	373	304	317	297	300	288
B1 BE50	All causes	100	100	100	100	100	100	100	100	100	100	100	100

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Traffic and drowning deaths

Coming to particular types of fatal accidents an examination of the figures available shows that transport and drowning constitute the two most important categories in the 1-19 age group. With the former deaths from motor vehicle accidents form the major part. However it is not altogether surprising that the figures differ from country to country although perhaps it is more surprising that they differ to a greater degree by age and sex. In Australia, Canada, England and Wales, Germany, Sweden, Switzerland and the United States of America motor vehicle accidents take the lead for both sexes. Whereas in Japan and Ceylon drowning is the chief cause of accidental death.

If these statistics are broken down by age group it is revealed that drowning and transport accidents vary in prevalence according to age. For instance in Australia, motor vehicle accidents only come first in the male age groups of 5-9 and above. The same is true for Germany, Italy, the Netherlands and Switzerland. In Japan however where drowning it will be recalled is the chief cause of accidental death it only takes this place in the first three male age groups—1-4, 5-9, 10-14.

Environment also plays its special role in accidental death among children. In Switzerland and Italy for example accidental falls are relatively more important than in the other countries studied. There is little reason to doubt that the reason lies in the mountainous nature of the terrain. In

Ceylon, England and Wales, Canada and the United States deaths resulting from fire or explosion are numerous.

Motor accidents limit gains

Although it might be concluded from what has already been said that there has been a rise in the accident rate for the 1-19 age group this is not actually true. Indeed, an examination of the death rate statistics from all causes including accidents in the countries surveyed shows that there has been a considerable fall since 1931. In most of them the accident mortality rate also fell although in some there was no appreciable change. In general terms it can be said that accidents are becoming a relatively important cause of death among children primarily because of the conquest of other causes of death but partly also because the rising tide of motor vehicle accidents is limiting the gains made elsewhere.

Although motor traffic is increasing fortunately the motor vehicle accident death rate for the 1-19 age group has not increased in the same proportion. However the problem is clearly not under control. While it is correct to state that in absolute magnitude accidental deaths are decreasing in most countries it is also true that the rate is not decreasing as fast as for many other causes of death. There is therefore no ground for complacency but there is obviously a need to determine effective and practical means of accelerating the decrease in all forms of accidental death.

not complete and the results are not yet available

Professor S. Gard reported that in Sweden a formalin treated poliovirus vaccine has been produced and tested on a small scale. The virus was grown in human embryonic tissue culture and inactivated with formaldehyde of 0.006 molarity for 11 days at 25°C.

In February and March 1955 a field trial on about 2000 schoolchildren in Stockholm was carried out. The experiment was designed as an antigenicity test to permit a direct comparison with the results obtained in the laboratory. Furthermore, the subcutaneous and intradermal routes of inoculation were compared and also the effect of intervals of three and six weeks between the first and second inoculations.

No serious side reactions of any kind were observed. Neutralization tests were carried out on pre and post inoculation sera. Although the numbers of children in each test group were too small to permit definite conclusions the results appeared encouraging.

A vaccination campaign had been planned for the spring of 1955 pending the publication of the report on the field trial in the USA in 1954. However after the release of the news of accidents following vaccination in the USA, and on account of the failure of some batches of Swedish vaccine to pass the safety tests the vaccination programme was called off.

* * *

The foregoing information on the experience in their respective countries presented by the members of the WHO expert group provided evidence that poliomyelitis vaccine had been successfully used on a relatively large scale in a number of countries. In the USA certain batches of vaccine were responsible for causing paralytic poliomyelitis in a small proportion of the children inoculated with them. In other instances their

use resulted in the introduction of infection into a household where it became manifest by the occurrence of a paralytic case in an uninoculated sibling or parent. In a few instances there was a further limited spread in the community in which the family or child lived.

Except for these incidents associated with a few lots of vaccine in which the total cases numbered about 200 several million children were inoculated without mishap in the USA. It has recently become clear that this was of considerable benefit in reducing the incidence of paralytic poliomyelitis the rate being significantly lower among the vaccinated children as compared with the unvaccinated children of similar age groups.

The preliminary reports available for Canada have also shown a significant reduction in the incidence of paralysis in the vaccinated children as compared with unvaccinated children of similar age groups. This age group as in the USA, is predominantly 7 to 9 years which is the only age group in which the effectiveness of the vaccine has so far been demonstrated. Sufficient information is not available at present to draw conclusions for other age groups.

In Denmark, Germany and South Africa poliomyelitis vaccine has been produced on a relatively large scale and approximately 800 000 children have been safely inoculated with no serious untoward reactions. It is still too early to assess the value of the vaccine in these countries in preventing paralytic poliomyelitis.

Only time will tell how long the benefit conferred by vaccination will last. A full appraisal of its value will not be possible until children inoculated in early childhood have grown up and passed through the years of childhood and adolescence when they are most liable to suffer from paralytic poliomyelitis.

Although it has been clearly demonstrated that a safe and effective formalin treated

vaccine can be produced it is equally evident that its production is associated with some uncertainty and presents problems which merit consideration

Problems relative to vaccine production and administration

The group of experts discussed in detail several aspects of the preparation of vaccine and of vaccination safety testing of vaccines including control of the inactivation process the final tissue-culture safety test the monkey safety test and other safety tests selection of strains for inactivated poliomyelitis vaccine antigenicity tests theoretical complications of vaccination against poliomyelitis live virus vaccines and design and techniques of serological surveys It also outlined the most important problems on which further research is needed with emphasis on those contributing to ensuring the safety of the vaccine

Public health application of inactivated poliomyelitis vaccine under different epidemiological conditions

The main concern of the WHO group was to try to determine on the basis of the information available on experience to date to what extent poliomyelitis vaccination at its present stage of development should be applied on a large scale The group accordingly weighed the considerations facing public health authorities and tried to establish some guiding principles for reaching a decision on whether or not to vaccinate against poliomyelitis

There are a number of questions to which the health officer needs an answer before he can decide whether or not to recommend poliomyelitis vaccination as a general public health measure

The first question is whether the vaccine is safe for use on a mass scale and whether com-

mercial production is sufficiently developed to produce a safe product consistently It should be noted that apart from the major incident described on page 4 and one relatively minor incident not as yet fully clarified there has been no evidence that the vaccine caused poliomyelitis among the 10 million or more children who have been inoculated The latest developments in production techniques and methods of testing should be a further assurance of the safety of the product

The second question is whether the vaccine is effective The conclusions of the report on the field trial in the USA in 1954* and the experience outlined on pages 4 to 10 show that it has been proved to be effective under certain conditions in schoolchildren between the ages of 6 and 10 Adequate information is still lacking as to its effectiveness in other age groups and information is especially needed regarding very young children Nor is it known how effective it will be under very different epidemiological circumstances

The third question health authorities may ask is whether the vaccine should be applied on a mass scale everywhere or whether its use should be restricted to specific epidemiological conditions and whether there are circumstances in which it is inadvisable to apply mass vaccination The answer should be derived from two main considerations which are to some extent interdependent On the one hand there is the seriousness of the problem of poliomyelitis in the country concerned that is to say the incidence of paralytic disease The age incidence must also be considered since paralytic poliomyelitis tends to be more severe in adult life On the other hand there are the cost and the practicability of a mass vaccination programme which must be considered in relation to the funds and facilities available to the other demands upon the available funds

* Vaccine Evaluation Center University of Michigan (1955) Evaluation of 1954 field trial of poliomyelitis vaccine A A Bor

and to the saving in human suffering and in the cost of hospital and social care

In many countries it may be difficult to determine these facts. Reliable statistical information may be lacking. Every effort should therefore be made to determine the actual situation in the country before reaching a decision. This information will also be essential for the planning of a mass programme. If such a programme is planned *a decision will have to be made as to which age groups to immunize.* There are two ways in which this could be done. The first is by a study of the age incidence of paralytic poliomyelitis preferably accumulated over a number of years. For example it has been confirmed by serological studies that where environmental sanitation is still inadequate, the disease is usually predominantly infantile, 90% or more of the cases occurring in the first two or three years of life and that almost everyone over the age of 5 is immune. Thus there is no point in vaccinating those over 5 years old. On the other hand in countries where as many as one third of all cases occur over the age of 15, it may be necessary to vaccinate persons up to the age of 40 or even older.

In many areas reliable information regarding the age incidence of poliomyelitis is lacking. Where this is so every effort should be made to improve the collection of morbidity statistics as soon as possible. As an interim measure valuable information can be obtained from properly designed serological surveys to determine the immunity status of the population. It should be emphasized however that where adequate morbidity statistics are available serological surveys need not be considered a prerequisite for a vaccination programme.

In the present state of knowledge there are many questions which cannot be answered. It is not yet known how effective the vaccine will be in a country where the disease is practically restricted to early child

hood nor is it known what effect vaccination will have on the epidemiological situation. Should it be proven that mass vaccination greatly reduces dissemination of poliomyelitis virus in an area artificial immunity will not be reinforced by natural exposure, and the vaccinated population will be immune only for as long as the protection of the vaccine lasts unless reinforcing doses are given at regular intervals. There is at present no knowledge of the long term effects of vaccination. The possibility must be considered that in such areas the favourable balance between infection and immunity which at present exists may be upset.

On the other hand it must be recognized that in recent years many countries in tropical and sub tropical areas have noted an increase in the incidence of poliomyelitis and there is reason to believe that poliomyelitis may become a public health problem of major importance in areas where now it is considered of minor importance. It is therefore emphasized that every effort should be made to acquire a better knowledge of the poliomyelitis problem in all countries as soon as possible by the improvement of statistical information and if necessary, by suitable serological surveys. It should be noted here that in small islands and other isolated communities serological surveys may be the only way of obtaining a true picture of the situation. Although poliomyelitis virus may only rarely be introduced into such communities, it may cause devastating epidemics when this happens.

Practical problems which face the public health administration in planning a vaccination campaign include such questions as dosage, route of injection, number of injections and the intervals between them, the duration of immunity and the need for reinforcing doses, the probable incidence of complications and their treatment, the control of vaccine production and of the finished product and its stability under different

conditions of storage, climate and transport. It is considered undesirable at the present time to attempt to lay down any specifications which might restrict further developments. The following remarks should therefore be considered only as a guide which will certainly have to be modified as experience is accumulated.

Vaccine has been administered intra-muscularly, subcutaneously or intradermally. The optimum dosage schedule has not yet been determined. At the present time the recommended dose is 1 ml intra-muscularly or subcutaneously or about 0.2 to 0.5 ml intradermally in two sites. The first two doses have usually been given at an interval of about one month and have been followed by a reinforcing dose several months later. Recent experience in the USA suggests that a significant degree of protection may be conferred by a single dose.

The provocation of paralytic poliomyelitis by inoculations, particularly intramuscular inoculations which cause local reactions, seems now to be established. There is no reason to assume that inoculation of poliomyelitis vaccine is completely free from this risk, although its very slight local irritant action may minimize the risk.

The assessment of the risk of provocation if any is of importance in deciding whether to carry on mass vaccination campaigns during epidemics of poliomyelitis. Opinions on the probable frequency with which provocation may occur as a result of vaccination vary from zero to relatively high figures, and it is clear that no opinion is fully supported by adequate evidence.

It is recognized that health authorities may be faced with a virtual necessity to carry out mass vaccination of populations threatened with a large epidemic. It is impossible for the reasons stated to give clear guidance on the possible dangers of provocation which would in any case be set against the benefits of the immunity

produced. It is nevertheless essential that health authorities should be aware that the absence of danger has not yet been proven.

It would therefore seem wise to conduct mass vaccination programmes at times when the prevalence of poliomyelitis is usually low. This is recommended if only because of the danger that the chance occurrence of poliomyelitis in a vaccinated child might be ascribed to the vaccine even though the latter may be perfectly safe. Mainly for the reasons mentioned above it seems inadvisable to vaccinate family contacts of established poliomyelitis cases.

The duration of immunity following vaccination is at present unknown. Neutralizing antibodies may be detected for a few years at least. More information is needed on the relationship between the antibody level and the resistance to infection, but there are grounds for believing that the presence of detectable antibody implies a significant degree of resistance to the paralytic disease.

In summary, the group considered that subject to the application of the necessary safeguards, countries with a high incidence of paralytic poliomyelitis should plan to bring vaccination into routine use at an early date. In countries with a low incidence of paralytic poliomyelitis a decision to vaccinate should be made only after a careful review of the many other factors previously discussed.

Every effort should be made to incorporate in the vaccine strains of virus attenuated as far as possible consistent with the maintenance of adequate antigenicity after inactivation, especially in countries starting vaccine production on a large scale for the first time. If this course were followed the danger arising from failure to detect traces of residual active virus in the vaccine would be minimized.

and to the saving in human suffering and in the cost of hospital and social care

In many countries it may be difficult to determine these facts. Reliable statistical information may be lacking. Every effort should therefore be made to determine the actual situation in the country before reaching a decision. This information will also be essential for the planning of a mass programme. If such a programme is planned a decision will have to be made as to which age groups to immunize. There are two ways in which this could be done. The first is by a study of the age incidence of paralytic poliomyelitis preferably accumulated over a number of years. For example, it has been confirmed by serological studies that where environmental sanitation is still inadequate the disease is usually predominantly infantile 90% or more of the cases occurring in the first two or three years of life and that almost everyone over the age of 5 is immune. Thus there is no point in vaccinating those over 5 years old. On the other hand in countries where as many as one third of all cases occur over the age of 15 it may be necessary to vaccinate persons up to the age of 40 or even older.

In many areas reliable information regarding the age incidence of poliomyelitis is lacking. Where this is so every effort should be made to improve the collection of morbidity statistics as soon as possible. As an interim measure valuable information can be obtained from properly designed serological surveys to determine the immunity status of the population. It should be emphasized however that where adequate morbidity statistics are available serological surveys need not be considered a prerequisite for a vaccination programme.

In the present state of knowledge there are many questions which cannot be answered. It is not yet known how effective the vaccine will be in a country where the disease is practically restricted to early child

hood nor is it known what effect vaccination will have on the epidemiological situation. Should it be proven that mass vaccination greatly reduces dissemination of poliomyelitis virus in an area artificial immunity will not be reinforced by natural exposure and the vaccinated population will be immune only for as long as the protection of the vaccine lasts unless reinforcing doses are given at regular intervals. There is at present no knowledge of the long term effects of vaccination. The possibility must be considered that in such areas the favourable balance between infection and immunity which at present exists may be upset.

On the other hand it must be recognized that in recent years many countries in tropical and sub tropical areas have noted an increase in the incidence of poliomyelitis and there is reason to believe that poliomyelitis may become a public health problem of major importance in areas where now it is considered of minor importance. It is therefore emphasized that every effort should be made to acquire a better knowledge of the poliomyelitis problem in all countries as soon as possible by the improvement of statistical information and if necessary by suitable serological surveys. It should be noted here that in small islands and other isolated communities serological surveys may be the only way of obtaining a true picture of the situation. Although poliomyelitis virus may only rarely be introduced into such communities it may cause devastating epidemics when this happens.

Practical problems which face the public health administration in planning a vaccination campaign include such questions as dosage, route of injection, number of injections and the intervals between them, the duration of immunity and the need for reinforcing doses, the probable incidence of complications and their treatment, the control of vaccine production and of the finished product and its stability under different

all wage-earners in French industries once a year in Norway only those under 20 and over 50 years of age are so examined

At the Leyden meeting several participants mentioned the more or less marked opposition of the trade unions in certain countries to the principle of pre-employment medical examinations which according to them, are used for the rejection rather than for the placement of candidates. In order to dissipate this impression and to obtain the co-operation of the trade unions in several countries the United Kingdom and Belgium in particular these medical examinations are given during the three weeks subsequent to engagement

In discussions on different methods of assessing working capacity it was decided that a satisfactory system must be sufficiently flexible to make it adaptable to the varying conditions in industry. The seminar participants preferred a system of rating based on candidates' abilities which experience in the Netherlands has shown to be the most practical approach at the present time

A worker cannot be considered suitable for a post merely because he has the ability to do the work: the candidate's capacity for adapting himself to the conditions of employment must also be taken into account. Persons with great emotional stability appear to have a particular capacity for adapting themselves and for this reason they can sometimes be assigned to jobs for which they cannot fulfil all the requirements. It must not be forgotten that a worker is also a member of a team to which he must be able to adapt himself

There is no doubt that early vocational guidance will make later placement easier. The future worker chooses his occupation on the basis of his capacities and disabilities. This is particularly true of occupations which demand great physical strength such as lumbering

Experience has shown that there is no great difficulty in placing workers with slight

disability especially in periods of shortage of labour. On the other hand job analysis and pre-employment examination are extremely important for the severely disabled. Although it is often difficult to find employment for mentally handicapped persons persons physically disabled as a result of accidents can be just as efficient as able-bodied workers provided they are given suitable work. Sickness absenteeism above the average may however occur when workers suffering from chronic diseases such as chronic bronchitis tuberculosis or gastric ulcers are employed thus disturbing production and increasing the employer's contribution to sickness insurance. It was the general opinion however that this extra economic burden would be part of the employer's social responsibility

Absenteeism in industry

The discussions at both seminars provided interesting information on the problem of absenteeism in several countries. General experience in many countries has shown that only a very small part of total absenteeism is due to occupational diseases. It was also found that absenteeism seems to be less in the smaller than in the larger undertakings

Both at Leyden and at Milan examples were given showing that economic factors play a very variable role from country to country. In some countries (Belgium, Switzerland) the raising of sickness benefits has brought about an increase in the number of days lost owing to accident or illness whereas in others (France, Netherlands) it has caused no change

At the first seminar it was pointed out that the situation of the labour market and in particular the drop in unemployment may have contributed to the increase in absenteeism in industry

On the subject of records and statistics of absenteeism, the participants at both seminars

Since the production and the testing of poliomyelitis vaccine require considerable experience and the highest technical skill if accidents are to be avoided they should be attempted only if technical personnel and equipment of a very high standard are available and only after the technical staff has been thoroughly trained in the essential techniques. In view of the difficulty and expense of meeting this requirement, countries with limited resources might consider some form of co-operation.

The continued successful use of poliomyelitis vaccination as well as some future

developments in this field, may depend on a knowledge of the characteristics of the prevalent poliomyelitis viruses in various parts of the world and of other viruses causing similar clinical syndromes. It is essential, therefore, that national laboratories should co-operate with the existing network of WHO regional poliomyelitis laboratories in order to facilitate the collection interchange, and study of poliomyelitis viruses and that laboratories collaborating in the network should also be encouraged to exchange and study viruses which may be responsible for clinical disease resembling poliomyelitis.

OCCUPATIONAL HEALTH

The concept of occupational health has undergone considerable change in the past fifty years under the combined influence of the increasing importance of industry in the economic social and political life of most countries the impact of industrialization on living and working conditions and the growing recognition of public responsibility for the health and welfare of the individual. While at the beginning of the century industrial hygiene was primarily concerned with occupational diseases and accidents the aim of "occupational health" today is the protection and improvement of the health of workers of all kinds.

In order to promote a wider understanding of what may be done in this relatively new field of public health and to assist the development of occupational health services in all countries the WHO Regional Office for Europe organized two seminars one at Leyden in December 1952 and the other at Milan in October 1953. A recent issue of the *Bulletin of the World Health Organization*¹

contains a selection of the papers presented at these seminars, together with a summary of the seminar discussions. What follows is drawn from the latter.

Medical examinations job analyses, and placement

Medical examinations in industries are an excellent means of checking on and improving the health of workers and of the population in general. While agreeing on this point the participants in the Leyden seminar nevertheless felt that not too great an importance should be attached to periodical health examinations. The usefulness of such examinations depends on factors which vary so much from country to country—such as a high frequency of a particular disease the health standards of the population the degree of development of public health services and their structure—that no definite rules can be established as to the intervals at which the examinations should be held or of what they should consist. For example while industrial physicians examine

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show that their employment is justified. Nevertheless the continual increase in the proportion of older workers is creating a serious problem in industry. In 1980 the USA will probably have 22 million persons over 65 years of age and 43 million between 45 and 64.

Retention of older workers seems to be most easily feasible in agriculture while the greatest difficulties are met with in the small industries which offer fewer opportunities to change occupation.

It was felt that a study should be made of the reasons for workers desiring to continue in employment after the normal retiring age. In Ireland it has been found that workers generally retire at the specified age if their pension is adequate or if they intend to engage in some other remunerative work or occupy themselves with some hobby. Investigations in Norway have shown that half and possibly two-thirds of the men want to continue work even though some of them are not fit for it.

The seminar expressed the hope that a more thorough study would also be undertaken of the physical and mental aptitudes of older workers and of the best way of utilizing such workers without detriment to their health. It was felt that comparison of data collected in different countries would be considerably facilitated if the work to be done could be based on a co-ordinated plan of research.

Rehabilitation of physically handicapped workers

The success of any rehabilitation technique depends on the extent of the disability and on the age of those to whom it is applied. Experience has shown that rehabilitation is more difficult after the age of 40 or when the handicap is due not to illness but to an accident.

The question of applying a system of

compulsory employment of a certain percentage of handicapped workers (e.g. 3% in the United Kingdom and 6% in Germany) was considered by seminar participants as too rigid since some sectors of industry can absorb more such workers than others. Such a provision is superfluous where rehabilitation programmes are successfully applied.

At the first seminar the discussion centred mainly on the problem of the rehabilitation of tuberculous workers for whom great efforts are made in a number of countries. The Irish Red Cross has recently set up two workshops for the rehabilitation and training of tuberculous workers before their re-entry into industry. In the United Kingdom when a tuberculous person is capable of part time work only the national insurance will provide for the rest of his wages through the public assistance board. Statistics from the Philips factories in the Netherlands show that 36% of 1307 workers taken on as cured of tuberculosis between 1935 and 1948 had a relapse.

There are a great many difficulties in connexion with the rehabilitation of temporary invalids and quite often workers, employers and even physicians oppose it. They should all be informed of the advantages of early return to work. For the worker this is better than sickness benefits and prolonged treatment because it prevents him from becoming frustrated and keeps him in good physical and mental condition as for the employer it lessens his contribution to the sickness fund and reduces absenteeism.

Rehabilitation of persons who have suffered minor accidents does not necessarily require special centres. Industrial medical services with the aid of technical sections should be sufficient as will be seen from the figures below on the treatment of persons for accident or injury in a ball bearing plant in Sweden.

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The problem of absenteeism is still far from being solved and the hope was expressed that investigation of its causes would continue and that a comparative study would be made of the differences in absenteeism in different countries among groups of workers of the same age of the same occupation and employed in the same type of industry.

Mental health of workers

In the opinion of participants in the Milan seminar, the question of the mental health of workers to which very little attention has so far been paid is destined to become one of the most important problems of occupational health. For adequate protection of the mental health of workers three of their essential needs must be satisfied, and these were defined by the participants as follows:

- (1) the need to create and to do useful work
- (2) the need to feel themselves respected
- (3) the need for security

It was agreed that it is easier to apply the principles of mental health in large industries if work groups do not exceed 300-500 persons and if they are decentralized and enjoy a certain amount of independence.

It was also recognized that mental health in industry depends upon the adaptation of each worker to his task and on human relations in the undertaking as well as on economic and social factors. Industrial medical officers must therefore not only detect at an early stage any case of mal-

adjustment to work, but also contribute to the creation of a spirit of understanding among the various groups of workers.

A number of adaptation problems connected with recruitment and promotion were discussed at the Leyden seminar. It sometimes happens that a post is filled not on the basis of the work requirements, but on that of the ability and qualifications of the last holder of the post. Sometimes insufficient care is taken to ascertain the real abilities of a candidate which leads to the recruitment of over qualified or under qualified persons.

At Milan it was pointed out that alcoholism constitutes a serious problem in some countries. The suggestion was also made that female labour by disorganizing family life might have a bad effect on the mental health of a large part of the population. The presence of a wife in the home was considered to be an important stabilizing factor but it was also realized that without female labour many countries would be unable to maintain the living standards they have achieved.

Problem of elderly workers

It was pointed out at Leyden that the employment of elderly workers depends not only on individual physiological and psychological factors but also on the labour market and on the demographic situation in each country. In Germany older workers have no difficulty in finding employment owing to the loss of man power due to the war and to the low birth rate since 1942. In the Netherlands on the other hand where the birth rate has risen considerably very few industries will employ many workers over 50 years of age. It is considered there that in the heavy industries only 75% of workers over 50 are still capable of "normal" work. Persons of advanced age need to be active and studies on output and absenteeism

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Year	Total number of workers	Accidents reported at the plant	per 100 workers	Accidents compensated	per 100 workers	Number of days sick led & compensated
1947	3 930	1 692	42.8	309	7.8	21.0
1948	4 570	2 305	50.6	324	7.0	20.5
1949	4 590	2 049	44.9	316	6.9	23.0
1950	4 398	1 686	38.2	223	5.1	25.3
1951	4 260	1 504	35.2	149	3.5	25.4

In this plant, 82% 90% of the injured are back at work within two days if they are absent for longer, they have the right under national legislation, to compensation for occupational accident. The medical officers of the plant, in agreement with the heads of the various workshops, decide what type of work can be temporarily assigned to an injured employee.

Safety of workers

At the Milan seminar it was recognized that the frequency of industrial accidents constitutes an important problem. In France alone among six million workers covered by social security, some 1 800 000 persons annually suffer occupational accidents of whom 3000 die, 70 000 are permanently disabled and 100 000 are temporarily disabled.

The prevention of accidents is a collective responsibility shared not only by workers and employers but also by industrial medical officers, psychologists, safety engineers and social workers. The human factor is an important cause of accidents and requires appropriate action but technical preventive measures must not be neglected. By organizing work with due regard to human physiology and psychology the number of accidents may be reduced.

It is extremely difficult to enforce safety rules. Persuasion is more effective than compulsion and excellent results are obtained by enlisting the good offices of trade union representatives or of volunteers among the workers. It is doubtful whether posters are of much use in preventing accidents. Several

seminar participants considered them even to have a bad effect.

There is an educational aspect to the prevention of accidents. Medical officers and engineers should be taught safety principles. The education of workers, and in particular of new workers also gives good results. In Belgium it is largely due to the safety committees, which have existed in some industries for as long as 25 years, that the rate of accidents has dropped by 60%.

It cannot be said that all categories of staff pay the same amount of attention to safety measures and accident prevention. A study made in France showed that manual workers on the whole attach great importance to them but that the higher the professional category the less is the attention given to them.

Health services in large plants

In examining this question the participants in both seminars discussed whether treatment and medical care should be part of the responsibility of medical services in large plants. In the course of the discussions both those for and those against purely preventive industrial health services developed their arguments. The former maintained that most sickness among workers has its origin outside their occupation and that moreover the treatment of diseases and injuries is the same whether they are of occupational origin or not. Therefore the public health or social security organizations should be responsible for treatment and the real problem is how to co-ordinate the activities of these bodies with those of the industrial medical

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officer. Those opposed to this view pointed out that it is difficult to dissociate prevention and treatment altogether and maintained that preventive medicine and curative medicine are not separate but complementary.

In France for instance treatment by industrial medical officers is limited to first aid. In Morocco the mining companies on account of their isolation find it preferable to organize medical treatment services as well as industrial health services proper. A number of large undertakings in Belgium have set up within the framework of the industrial health service special hospitals for the treatment of injured workers.

At the Milan seminar it was suggested that liaison might be maintained between the medical services in large factories and the university institutes of industrial health. It was felt that even if the contacts were limited to exchange of information both parties might draw great benefit from such liaison.

Health services in small plants

At Milan it was pointed out that although the problem of treatment in the factory has still to be solved it might be an advantage in small plants for part of the medical treatment to be entrusted to the plant physician even if only to keep the worker at his job.

Liaison between the plant physician and the general medical practitioner on the one hand and the local public health services on the other is particularly important in relation to smaller plants.

Nurses attached to the health service in small plant play a very important role and they should not be overloaded with administrative tasks. A survey made in 12 small industrial undertakings in the USA revealed that industrial nurses spend 22% of their time on work which does not properly fall within the purview of their profession.

From the discussions at Leyden it was clear that health problems differ in many ways

between large and small plants. The accident rate in the latter is often higher and in general hygiene conditions call for improvement. On the other hand in small plants neuroses are less common nervous and mental disorders are less serious and the general morale is better. As a result there is also less absenteeism. Small plants however offer fewer opportunities for rehabilitation reclassification and transfer of workers. A group of plants in the same area of the Netherlands have solved this problem by agreeing that if the industrial medical officer of their common health service so advises any worker in one plant may be transferred to another plant within the group.

At Leyden reference was made to the desirability of obtaining the agreement not only of administrations of undertakings but also of the trade unions with regard to the establishment of health services. Some participants did not consider trade union health services to be either effective or practical.

It was proposed also at Leyden that a pilot study be undertaken in various countries on health services in small plants in order to define their problems and duties establish appropriate methods and techniques and co-ordinate their activities with those of the public health services.

* * *

The WHO sponsored seminars in Leyden and Milan threw considerable light on a number of occupational health problems and drew attention to others which may warrant further discussion at the international level among them the training of those who are bound to play a part in occupational health. Professor F. C. Vighani in particular pointed out at the Milan seminar that occupational health calls not only for specialized training of some physicians but also for proper orientation of the general practitioner.

There are today thousands of physicians whose time is devoted fully or in part to medical work in

**TABLE II INDEX OF INCREASE OF MORTALITY
FOR BOTH TYPES OF ULCERS
FROM AGE 40-49 (40-49 = 100)**

	40-49	50-59	60-69	70-79	80 & +
Canada	100	73	434	766	1173
USA	100	74	406	539	789
Japan	100	236	462	680	673
Germany (Federal Republic)	100	180	273	31	323
Austria	100	210	417	620	690
Denmark	100	239	333	533	739
Finland	100	180	343	373	347
France	100	168	762	400	344
Ireland	100	157	763	343	757
Italy	100	182	15	203	191
Norway	100	247	350	70	113
Netherlands	100	72	396	646	94
England & Wales	100	240	499	627	1194
Scotland	100	212	34	619	679
Northern Ireland	100	317	633	953	1879
Sweden	100	232	383	667	1053
Switzerland	100	224	467	991	1473
Austria	100	266	502	639	114
New Zealand	100	765	663	1193	1643

types of ulcer as shown in Table II in which the age group 40-49 years is taken as the basis of comparison. The influence of the "age factor" is seen to be a definite and sometimes very important one.

According to figures which are not reproduced here duodenal ulcers cause slightly greater mortality among young men than do stomach ulcers the latter on the other hand cause far more deaths among old people. For reasons previously mentioned however the relative rates may appear greater than they actually are. Some of the published data on the two types of ulcer are summarized in Table III.

Study of the detailed figures of mortality according to sex and age reveals that death from ulcers is higher among men at an earlier age than among women but that with increasing age the difference becomes less.

It would of course be unwise to take the published statistics at their face value regard less of how much care has been taken in

**TABLE III PERCENTAGE OF DEATHS FROM
ULCERS OF THE STOMACH OR OF THE
DUODENUM COMPARED WITH TOTAL
ULCER DEATHS**

(Deaths from both types = 100)

		Males	Females
		%	%
Canada	Stomach	43	62
	Duodenum	47	38
USA	Stomach	1	28
	Duodenum	49	42
Japan	Stomach	97	92
	Duodenum	8	8
Germany	Stomach	71	81
	Duodenum	29	19
France	Stomach	89	92
	Duodenum	11	8
Italy	Stomach	59	68
	Duodenum	41	32
Netherlands	Stomach	51	67
	Duodenum	49	33
England & Wales	Stomach	48	67
	Duodenum	—	33
Sweden	Stomach	54	68
	Duodenum	46	32
Austria	Stomach	57	69
	Duodenum	43	31

industry and it is proposed on every hand to enlarge their field of activity by legislative measures. Only a certain number of them however have so far received the proper training. Moreover most general practitioners have a large number of workers in industry or trade among their patients. Under these conditions if we wish to protect the health of the workers properly and to care for them and to

develop industrial medical services to that end we must give every medical student some knowledge—no matter how summary—of the effect of work on health. We must also give the qualified physician the opportunity not only to keep up to date with developments but also to engage in more advanced study and to undertake scientific research in this branch of medicine.

MORTALITY FROM ULCERS OF THE STOMACH AND DUODENUM

Statistics assembled by WHO and made available in a study published by the Organization¹ reveal that at least in most of the countries covered in the study ulcers of the stomach and duodenum are responsible for more deaths than cirrhosis of the liver, bronchitis non epidemic influenza and other common infectious diseases.

The Sixth Revision of the International Lists of Diseases and Causes of Death which was adopted in 1948, is now used in many countries. The Detailed List classifies gastric and duodenal ulcers under two separate headings, but the two are given under a single heading in the Abbreviated List of 50 Causes for Tabulation of Mortality, which is used for certain official statistics. Even the statistics which are established on the basis of the Detailed List have a probable margin of error since some members of the medical profession continue to use the term "gastric ulcer" whatever the anatomical location which it is not always possible to specify in any case.

With this qualification it may be noted in Table I which shows considerable variations according to country that the crude mortality rate for ulcers is about 7 deaths per 100 000 of the population for both sexes and that death from this cause is in general three to four times as great among males as among females.

It is interesting to consider the mortality rates for different age groups for the two

TABLE I. MORTALITY FROM ULCERS OF THE STOMACH AND DUODENUM FOR ALL AGES PER 100 000 OF THE POPULATION 1951-1952

Country	Both sexes	Male	Female
Canada	50	81	19
USA	57	92	22
Ceylon	20	19	21
Japan	201	290	116
Germany (Federal Republic)	59	120	24
West Berlin	89	171	29
Austria	80	15	40
Denmark	74	114	35
Finland	48	79	20
France	32	53	12
Ireland	82	121	41
Italy	63	108	20
Norway	40	54	26
Netherlands	52	82	22
England and Wales	122	191	59
Scotland	119	190	53
Northern Ireland	76	115	40
Sweden	87	132	42
Switzerland	68	95	43
Australia	72	112	32
New Zealand	80	122	37

Notes and News

WHO Sponsored Visit of Medical Scientists to Egypt

A group of eminent medical scientists from a number of countries paid a month long visit to Egypt late in 1955 under the auspices of WHO as part of its exchange of information programme.

Chairman of the group was Dr Corneille Heymans Professor of Pharmacology at the University of Ghent Belgium. Other members were Dr F. A. E. Crew University of Edinburgh Scotland (Professor of Public Health and Social Medicine), Dr E. W. H. Cruickshank University of Aberdeen Scotland (Professor of Physiology), Dr G. Fanconi University of Zurich Switzerland (Professor of Paediatrics), Dr E. Grzegorzewski Director Division of Education and Training Services WHO, Dr E. Husfeldt University of Copenhagen Denmark (Professor of Surgery), Professor L. Kreyberg University of Oslo Norway (Professor of Pathology), Dr C. McEwen Dean of New York University College of Medicine New York USA (Associate Professor of Medicine), Dr O. Secher University Hospital Copenhagen Denmark (Reader in Anaesthesiology) and Dr H. de Watteville University of Geneva Switzerland (Professor of Obstetrics and Gynaecology).

The visiting group gave lectures, presented scientific films, worked in hospital departments with their Egyptian colleagues of the Cairo and Alexandria Universities and participated in conferences and discussions on specific subjects and on medical education in general.

Malaria Control Programme Planned for Sudan

A WHO consultant Dr A. B. Gilroy principal of the India Branch of the Ross Institute of Tropical Hygiene Assam has been sent to Sudan to advise the Ministry

of Health concerning its malaria-control policy. The Government has already done impressive work in controlling malaria but contemplates intensification of its efforts with WHO aid because of danger of an increase in the prevalence of the disease as a result of an irrigation project in the Blue Nile Province.

Dr Gilroy's assignment is the first step in WHO assistance. It is expected that a malaria-control team will begin work in Sudan early in 1956.

Trachoma Survey in Jordan

Dr Fand Abdin ophthalmic surgeon at the Memorial Ophthalmic Laboratory Giza Egypt has been appointed by WHO to carry out a survey of trachoma in Jordan. He will visit all parts of the country examining patients and gathering statistics on the incidence of trachoma. Subsequently on the basis of his findings he will help the Ministry of Health in initiating a WHO aided trachoma-control project and will discuss the organization and equipping of a hospital for eye diseases in Jordan.

Training of Auxiliary Health Personnel in Libya

Dr Ahmed Gamaledin el Hefny a public health administrator of long experience in Egypt has been appointed by WHO to head a team which will help to develop a training programme for auxiliary health personnel at a new school in Benghazi Libya. The international team will also include a sanitarian and a nurse. The Organization plans to give assistance to this project for two years beginning in 1956.

Meeting of Fellowship Administrators

More WHO fellows study in Europe than in any other region. Medical and adminis-

assembling them Any comparison of mortality rates between one country and another would not be warranted unless precise knowledge of how the figures were gathered and drawn up were available On the other hand, comparisons made from one year to another for a given country can generally be con-

sidered valid provided that any legislative or administrative changes which have been introduced during the periods covered are taken into account The data published on ulcers of the stomach and duodenum which deal mostly with the period 1949-53 offer an opportunity for such a study

World Health Day, 7 April 1956

Announcement has been made that the theme selected for World Health Day in 1956 is the struggle against the insect borne diseases The slogan suggested for expression of this theme is "Destroy disease-carrying insects" Each country should direct attention to the insect borne diseases which are of particular importance within its borders and to the international as well as the national efforts for their control

In preparation for observance of World Health Day suitable publicity material consisting of a series of twelve articles on relevant subjects by contributors of note is being supplied to governments requesting it This material is available in either English or French

World Health Day is being more widely observed each year and it is hoped that this year will see an even greater number of governments participating in this effort to develop an informed public opinion on matters of health

Tariffs of Sanitary Charges

A supplement to the *Weekly Epidemiological Record* (1955 No 46 Supp 5) gives information on the tariffs of sanitary charges in force in 65 countries and territories on 18 November 1955 Among the items included are charges for deratting, disinsecting, or disinfection of ships and aircraft inspection for the purpose of deratting, exemption, isolation of passengers, vaccinations, quarantine fees, measures in connexion with the Mecca Pilgrimage and others Also given is a statement showing the position of countries and territories under the International Sanitary Regulations listing them as bound without reservation, bound with reservation, or not bound

This supplement will serve as a useful guide to shipping agencies, captains of ships and aircraft, health administrations and individuals undertaking an international voyage

Review of WHO Publications

Bulletin of the World Health Organization
1955 Volume 13 Number 5 (pages 743-936)

In addition to articles on rabies prophylaxis and on Q fever which have been the subject of more detailed consideration in previous issues of the *Chronicle*¹ this number of the *Bulletin* contains two papers on serology ("Serological findings in leprosy and tuberculosis with the Wassermann Meinicke and VDRL tests" by H. Ruge and "Nouvelle technique de fixation du complément dans la sérologie de la syphilis" by G. M. P. Roulin) and two on biological standardization ("The International Standard for Oxytetracycline" by J. H. Humphrey, J. W. Lightbown, M. V. Mussett & W. L. M. Perry and "The International Standard for Thyrotrophin" by M. V. Mussett & W. L. M. Perry). Also in this number is a bibliographical section on yellow fever and cholera

Bulletin of the World Health Organization
1955 Volume 13 Number 6 (pages 937-1207)

This number of the *Bulletin* is devoted to a variety of studies.

There is the second of a series of articles on the chemical, pharmacological, therapeutic and addictive properties of synthetic drugs with morphine-like effect by O. J. Braenden, N. B. Eddy & H. Halbach. It deals with the structural characteristics of such substances in relation to their analgesic action. This series of articles is being pub-

lished in accordance with a resolution of the United Nations Economic and Social Council inviting WHO to provide technical information on synthetic narcotics.

Maria E. Alessandrini describes a practical method developed for taking samples of DDT or other insecticides from treated surfaces so that the content of insecticide in the residue can be analysed. This method is based on use of parchment paper coated with a silicone preparation to which the DDT adheres.

The results of a serological survey made in Thailand in the course of a yaws-control programme aided by WHO and UNICEF are summarized and discussed by J. M. F. D. Mello & P. Krag. Approximately 3500 persons suffering from yaws were subjected to serological examination before being treated. Cases with recent lesions as well as those with plantar and palmar hyperkeratosis gave a high rate of seropositivity while cases with bone and joint lesions and latent cases gave a considerable degree of seronegativity. One year after treatment with PAM there were no signs of active yaws in those treated. A reversion to seronegativity was noted in only 11% of cases, however.

A sample survey of tuberculosis prevalence in Japan in 1953 reported by Masayoshi Yamaguchi revealed a morbidity rate which calls for a revision of tuberculosis-control programmes in that country.

This number of the *Bulletin* is concluded with the sixth of Dr R. Pollitzer's studies on cholera, the subject being the pathology of the disease.

A bibliographical section contains references on smallpox.

trative officers from five countries in Europe (France Netherlands Sweden Switzerland and the United Kingdom) which receive large numbers of WHO fellows for post graduate study met informally with WHO officials in Geneva from 14 to 16 December to discuss the day to day placement problems arising out of the WHO fellowship programme During the discussions progress was made on such practical points as advance information on fellows, planning of individual study and of group training placement in research and training institutes and language difficulties

Heart Operations

The development of the congenital heart disease centres in Vienna and Zagreb since the visit of a WHO expert team in 1950¹ has now been reviewed In Vienna 150 children with congenital heart malformations including 82 blue babies have been operated on (only four operations were fatal) Eighty operations on adults have also been performed In Zagreb about 500 children have been examined Since 1951 80 heart operations on children (mortality four cases) and 67 heart operations on adults (mortality three cases) have been performed

As was expected there was at first a certain

accumulation of cases in both centres At present, about 100 cases are seen annually in Zagreb and 30 to 40 cases among children are seen annually in Vienna

Seminar on the Teaching of Preventive Medicine

The first of two seminars on the teaching of preventive medicine,² organized by the Pan American Sanitary Bureau (PASB) which acts as WHO Regional Office for the Americas was held in Viña del Mar Chile from 10 to 15 October 1955 It was attended by 73 participants from Argentina Bolivia Brazil Chile Paraguay Peru Uruguay and Venezuela as well as by representatives of the Rockefeller Foundation the Institute of Inter American Affairs, WHO and the PASB Dr Alejandro Garretón Silva Dean of the Faculty of Medicine of the University of Chile was elected Chairman and Dr Myron Wegman Chief of the Division of Education and Training of the PASB acted as Secretary General of the seminar

A second seminar on the same subject is expected to be held in 1956 in Mexico and will be for participants from Colombia Cuba the Dominican Republic Ecuador Guatemala, Haiti Honduras Mexico Nicaragua Panama Puerto Rico and Surinam

See CH on Wld Hth Org 1951 5 78

See CH on Wld Hth Org 1955 9 182

designated for this purpose for consideration in accordance with the General principles for guidance in devising International Non-proprietary Names" appended to this procedure. The name used by the person discovering or first developing and marketing a pharmaceutical preparation shall be accepted unless there are compelling reasons to the contrary.

3 Subsequent to the examination provided for in article 2 the Director General of the World Health Organization shall give notice that a proposed international non-proprietary name is being considered.

A Such notice shall be given by publication in the *Chronicle of the World Health Organization* and by letter to Member States and to national pharmacopoeia commissions or other bodies designated by Member States.

(i) Notice may also be sent to specific persons known to be concerned with a name under consideration.

B Such notice shall

(i) set forth the name under consideration.

(ii) identify the person who submitted a proposal for naming the substance if so requested by such person.

(iii) identify the substance for which a name is being considered.

(iv) set forth the time within which comments and objections will be received and the person and place to whom they should be directed.

(v) state the authority under which the World Health Organization is acting and refer to these rules of procedure.

C In forwarding the notice the Director General of the World Health Organization shall request that Member States take such steps as are necessary to prevent the acquisition of proprietary rights in the proposed name during the period it is under consideration by the World Health Organization.

4 Comments on the proposed name may be forwarded by any person to the World Health Organization within four months of the date of publication under article 3 of the name in the *Chronicle of the World Health Organization*.

5 A formal objection to a proposed name may be filed by any interested person within four months of the date of publication under article 3 of the name in the *Chronicle of the World Health Organization*.

A Such objection shall

(i) identify the person objecting.

(ii) state his interest in the name.

(iii) set forth the reasons for his objection to the name proposed.

6 Where there is a formal objection under article 5 the World Health Organization may either reconsider the proposed name or use its good offices to attempt to obtain withdrawal of the objection. Without prejudice to the consideration by the World Health Organization of a substitute name or names a name shall not be selected by the World Health Organization as a recommended international non-proprietary name while there exists a formal objection thereto filed under article 5 which has not been withdrawn.

7 Where no objection has been filed under article 5 or all objections previously filed have been withdrawn the Director General of the World Health Organization shall give notice in accordance with subsection A of article 3 that the name has been selected by the World Health Organization as a recommended international non-proprietary name.

8 In forwarding a recommended international non-proprietary name to Member States under article 7 the Director General of the World Health Organization shall

A request that it be recognized as the non-proprietary name for the substance and

B request that Member States take such steps as are necessary to prevent the acquisition of proprietary rights in the name including prohibiting registration of the name as a trade mark or trade name.

International Non-Proprietary Names for Pharmaceutical Preparations

There is need to avoid the confusion which exists when different non proprietary names come into use for the same medicinal substance. This multiplicity of names can be the source of difficulties in the daily work of the physician and of the pharmacist as well as in therapeutic research throughout the world.

In many countries attempts have been made and progress achieved in obtaining the desired uniformity on a national level (examples: Generic Names of the Council on Pharmacy and Chemistry of the American Medical Association; Approved Names of the General Medical Council in the United Kingdom; Nordiske Farmakopoeaen of the Scandinavian Pharmacopoeia Council; denominations communes in France etc). The World Health Organization was asked to co-ordinate these efforts at an international level and special requests were also made to select international non proprietary names for the drugs liable to produce addiction in order to facilitate their international control.

According to the following Procedure for the selection of recommended International Non Proprietary Names for pharmaceutical preparations WHO receives requests for the establishment of international non proprietary names for new pharmaceutical preparations which can be used freely in all countries and publishes lists of proposed international non proprietary names and of recommended international non proprietary names.

PROCEDURE FOR THE SELECTION OF RECOMMENDED INTERNATIONAL NON-PROPRIETARY NAMES FOR PHARMACEUTICAL PREPARATIONS¹

The following procedure shall be followed by the World Health Organization in the selection of recommended international non proprietary names for pharmaceutical preparations in accordance with the World Health Assembly resolution WHA3.11.

1. Proposals for recommended international non proprietary names shall be submitted to the World Health Organization on the form provided therefor.

2. Such proposals shall be submitted by the Director General of the World Health Organization to the members of the Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations.

The amended text reproduced here was adopted by the Executive Board in resolution EB15.R7 and supersedes that adopted by the Board at its twelfth session (see *Official Records* No. 49 Annex 6).

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(i) Notice may also be sent to specific persons known to be concerned with a name under consideration.

B. Such notice shall

(i) set forth the name under consideration

(ii) identify the person who submitted a proposal for naming the substance if so requested by such person

(iii) identify the substance for which a name is being considered

(iv) set forth the time within which comments and objections will be received and the person and place to whom they should be directed

(v) state the authority under which the World Health Organization is acting and refer to these rules of procedure

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2. Such proposals shall be submitted by the Director General of the World Health Organization to the members of the Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations.

acidum ascorbicum ascorbic acid	3-oxo-L-gulofuranolactone (enolic form)
acidum folicum folic acid	γ {4-[(12-amino-4-hydroxy-6-pentendyl)methyl]amino} benzoyl-L (+)-glutamic acid
acidum iophenoicum iophenoic acid	-(3-hydroxy 2,4,6-triiodobenzyl)-butyric acid
acidum nicotinicum nicotinic acid	pyridine 3-carboxylic acid
adipiodonum adipiodone	ad pic acid bis-(2,4,6-triiodo-3-carboxyanilide)
aethisteronum ethisterone	17 α -ethynyl 17 β -hydroxy 3-oxoandrostene-4
aethylis biscoumacetat ethyl biscoumacetate	ethyl 4,4'-dihydroxy 3,3'-dicoumarinylacetate
amidopyritum amidopyrine	2,3-dimethyl-4-dimethylamino-1-phenyl-5-pyrazolone
aminotrozolum aminotrozole	*-acetamido-5-nitrothiazole
aminophyllinum aminophylline	mixture of theophylline and ethylenediamine
aminopterinum natricum aminopterin sodium	sodium 4-aminofolate
amphetaminum amphetamine	(-)-2-amino-1-phenylpropane
androstanolonum androstanolone	3-hydroxy 17-oxoandrostane
arsthiolum arsthiol	ω -(3-acetamido-4-hydroxyphenyl)-1,3-dithia-2-arsa-4-cyclopentyl methanol
atropini methonitras atropine methonitrate	(\pm) 8-methyl 3-tropoyloxytropane nitrate
barbitalum barbital	5,5-diethylbarbituric acid
barbitatum natricum barbital sodium	sodium salt of 5,5-diethylbarbituric acid
benzatropini methanesulfonas benzatropine methanesulfonate	tropine benzhydryl ether methanesulfonate
bromazinum bromazine	ω -(4-bromophenyl)-phenylmethoxy)-ethyl dimethylamine
bucizinum bucizine	1-(4-chlorobenzhydryl)-4-(4-tert-butylbenzyl)-piperazine
butacainum butacaine	3-dibutylaminopropyl p-aminobenzoate
butalbitalum butalbital	5-allyl-5-isobutylbarbituric acid

GENERAL PRINCIPLES FOR GUIDANCE IN DEVISING INTERNATIONAL NON PROPRIETARY NAMES

- Names should preferably be free from any anatomical physiological pathological or therapeutic suggestion
- An attempt should first be made to form a name by the combination of syllables in such a way as to indicate the significant chemical groupings of the compound and/or its pharmacological classification Preference should be given to the following syllables

Latin	English	French	
inim	ine	ine	for alkaloids and organic bases
inum	in	ine	for glycerides and neutral principles
olum	ol	ol	for alcohols and phenols (OH group)
alum	al	al	for aldehydes
onum	one	one	for ketones and other substances containing the CO group
enum	ene	ene	for unsaturated hydrocarbons
inum	ane	ane	for saturated hydrocarbons
cainum	caine	caine	for local anaesthetics
mer	mer	mer	for mercurial compounds
sulfonium	sulfone	sulfone	for sulfone derivatives
quinum	quine	quine	for antimalarial substances containing a quinoline group
crinum	crine	crine	for antimalarial substances containing an acridine group
sulfa	sulfa	sulfa	for derivatives of sulfanilamide
dionum	dione	dione	for anti-epileptics derived from oxazolinedione
tonum	toin	toin	for anti-epileptics derived from hydantoin
stigmum	stigmine	stigmine	for anticholinesterases

3 Names should be distinctive in sound and spelling They should not be inconveniently long and should not be liable to confusion with names already in use

4 The addition of a terminal capital letter or number should be avoided as far as possible

5 Names proposed by the person discovering or first developing and marketing a pharmaceutical preparation or already officially adopted in any country or used in the national pharmacopoeias or in works of reference such as New and Non-official Remedies should receive preferential consideration

* * *

In accordance with article 3 of the Procedure for the Selection of Recommended International Non Proprietary Names for Pharmaceutical Preparations notice is hereby given that the following names are under consideration by the World Health Organization as Proposed International Non Proprietary Names

Comments on or formal objections to these proposed names may be forwarded by any person to the World Health Organization within four months from 1 February 1956

The inclusion of a name in this list does not imply any recommendation for the use of the substance in medicine or pharmacy

PROPOSED INTERNATIONAL NON PROPRIETARY NAMES (Prop INN) LIST 4¹

Proposed International
Non Proprietary Name
(Latin English)

Chemical Name or Description

acetarsolum	3 acetamido-4 hydroxyphenylarsonic acid
acetarsol	
acetylcholini chloridum	2 acetoxyethyltrimethylammonium chloride
acetylcholine chloride	

¹ Other lists of proposed international non proprietary names will be found in *Chemical Names* 1953 7 297 1954 8 216 313 A list of recommended international non proprietary names was published in *Chemical Names* 1955 9 185

Proposed International Non-Proprietary Name (Latin, English)	Chemical Name or Description
diethylstilboestrolum diethylstilboestrol	<i>trans</i> 3,4-bis-(4 hydroxyphenyl)-hexene 3
digoxinum digoxin	glycoside obtained from the leaves of <i>Digitalis lanata</i> Ehrh
dihexyverinum dihexyverine	2 piperidinoethyl 1-cyclohexylcyclohexanecarboxylate
dihydralazinum dihydralazine	1,4-dihydrazinophthalazine
dimazolum dimazole	2-dimethylamino-6-(2-diethylaminoethoxy)-benzothiazole
diphemanil methylsulfas diphemanil methylsulfate	<i>N,N</i> -dimethyl-4-piperidylidene-diphenylmethane methylsulfate
dithranolum dithranol	1,8,9 anthra[n]ol
ectylurea ectylurea	2-ethylcrotonylurea
edrophonium chloridum edrophonium chloride	ethyl dimethyl 3-hydroxyphenylammonium chloride
ergometrinum ergometrine	an alkaloid obtained from ergot
ergotaminum ergotamine	an alkaloid obtained from ergot
erythromycinum erythromycin	an antibiotic produced by a strain of <i>Streptomyces erythreus</i>
ethaverinum ethaverine	6,7-diethoxy 1-(3,4-diethoxybenzyl)-isoquinoline
gitalinum amorphum gitalin amorphous	a glycosidal principle of <i>Digitalis purpurea</i> L
glycerolum glycerol	propanetriol
heparinum heparin	sodium salt of a complex organic acid having the characteristic property of delaying the clotting of blood
hexylcanum hexylcaine	1-cyclohexylamino-2 propyl benzoate
hydroxystilbamidinum hydroxystilbamidine	1-(4 amidino-2 hydroxyphenyl)-2-(4-amidinophenyl)-ethene
isophanum insulinum isophane insulin	a sterile suspension of insulin with the isophanic equivalent of protamine and zinc chloride
lanatosidum C lanatoside C	glycoside obtained from the leaves of <i>Digitalis lanata</i> Ehrh
laudexu methylsulfas laudexum methylsulfate	decamethylene- <i>n</i> -bis [1-(3,4-dimethoxybenzyl)-1,2,3,4-tetrahydro-6,7-dimethoxy-2,2-dimethylisoquinolinium sulfate]

calciferolum	
calciferol	
calci saccharas	
calcium saccharate	calcium D glucarate
carbacholum	
carbachol	carbamoylcholine chloride
carbarsonum	
carbarsone	4-ureidophenylarsonic acid
carbimazolum	
carbimazole	2-ethoxycarbonylthio 1 methylimidazole
carbinoxaminum	
carbinoxamine	2 dimethylaminoethoxy 2 pyridyl-4-chlorophenylmethane
carzenidum	
carzenide	4-carboxybenzenesulfonamide
cetomacrogolum 1000	
cetomacrogol 1000	polyethylene glycol 1000 monocetyl ether
chinfofonum	
chinfofon	mixture of four part by weight of 7 iodo 8 hydroxyquinoline 4 sulfonic acid and one part of sodium bicarbonate
chlorbetamidum	
chlorbetamide	N (2 4-dichlorobenzyl) N (dichloroacetyl)-ethanolamine
chlormerodrinum	
chlormerodrine	(3-chloromercuri 2 methoxypropyl) urea
chlorobutanolum	
chlorobutanol	1 1 1 trichloro 2 methylpropanol 2
chlorocresolum	
chlorocresol	6-chloro 3 hydroxytoluene
chloroquinum	
chloroquin	7-chloro-4 (4 diethylamino 1 methylbutylamino) quinoline
chlorphenaminum	
chlorphenamine	1 (p-chlorophenyl) 1 (2 pyridyl) 3 dimethylaminopropane
chlortetracyclinum	
chlortetracycline	10-chloro 1 dimethylamino 1 4 6 11 12 13 14 18 octahydro-2 5 7 11 14 pentahydroxy-4 6-dioxo 11 methyl-naphthacene 3-carbamide
cholini chloridum	
choine chloride	2 hydroxyethyltrimethylammonium chloride
conessinum	
conessine	an alkaloid obtained from the seeds of <i>Holarrhena antidysenterica</i> L.
cycriminum	
cycrimine	1 phenyl 1 cyclopentyl 3 piperidino 1 propanol
desoxycortonium	
desoxycortone	21 hydroxy 3 20 dioxopregnene-4
dibrompropamidinum	
dibrompropamide	1 3 bis (4 amidino 2 bromophenoxy) propane
dichloroxylenolum	
dichloroxylenol	2 4-dichloro 3 5-dimethylphenol

diethylstilboestrolum diethylstilboestrol	trans 3,4-bis-(4-hydroxyphenyl)-hexene 3
digoxinum digoxin	glycoside obtained from the leaves of <i>Digitalis lanata</i> Ehrh
dihexyvernum dihexyverine	2 piperidinoethyl 1-cyclohexylcyclohexanecarboxylate
dihydralazinum dihydralazine	1,4-dihydrazinophthalazine
dimazolum dimazole	7-dimethylamino-6-(2-diethylaminoethoxy)-benzothiazole
diphemanil methylsulfas diphemanil methylsulfate	N,N-dimethyl-4-piperidylidene-diphenylmethane methylsulfate
dithranolum dithranol	1,8,9-anthracinol
ectylurea ectylurea	2-ethylcrotonylurea
edrophonium chloridum edrophonium chloride	ethyltrimethyl 3-hydroxyphenylammonium chloride
ergometrinum ergometrine	an alkaloid obtained from ergot
ergotaminum ergotamine	an alkaloid obtained from ergot
erythromycinum erythromycin	an antibiotic produced by a strain of <i>Streptomyces erythraeus</i>
ethaverinum ethaverine	6,7-diethoxy 1-(3,4-diethoxybenzyl)-isoquinoline
gitalinum amorphum gitalin amorphous	a glycosidal principle of <i>Digitalis purpurea</i> L.
glycerolum glycerol	propanetriol
heparinum heparin	sodium salt of a complex organic acid having the characteristic property of delaying the clotting of blood
hexylcanum hexylcaine	1-cyclohexylamino-2-propyl benzoate
hydroxystilbamidinum hydroxystilbamidine	1-(4-amidino-2-hydroxyphenyl)-2-(4-amidinophenyl)-ethene
isophanum insulinum isophane insulin	a sterile suspension of insulin with the isophanic equivalent of protamine and zinc chloride
lanatosidum C lanatoside C	glycoside obtained from the leaves of <i>Digitalis lanata</i> Ehrh
laudecum methylsulfas laudecum methylsulfate	decamethylene w-bis [1-(3,4-dimethoxybenzyl)-1,2,3,4-tetrahydro-6,7-dimethoxy-2,2-dimethylisoquinolinium sulfate]

levorphanol*	(-) 3 hydroxy <i>N</i> methylmorphinan
levorphanol	
levothyroxinum natricum	L β [(4-hydroxy 3 5-diiodophenoxy) 3 5-diiodophenyl] alanine
levothyroxine sodium	
lobelinum	L 2-(2 hydroxy 2 phenylethyl) 1 methyl 6 phenacylpiperidine
lobeline	
lucanthonium	1 (2-diethylaminoethylamino)-4-methylthioxanthone
lucanthone	
macrogolum 400	polyethylene glycol 400
macrogol 400	
macrogolum 1000	polyethylene glycol 1000
macrogol 1000	
macrogolum 4000	polyethylene glycol 4000
macrogol 4000	
macrogoli lauras 600	mono ester of lauric acid and polyethylene glycol 600
macrogol laurate 600	
macrogoli oleas 600	mono ester of oleic acid and polyethylene glycol 600
macrogol oleate 600	
macrogoli stearas 600	mono ester of stearic acid and polyethylene glycol 600
macrogol stearate 600	
macrogoli stearas 1000	mono ester of stearic acid and polyethylene glycol 1000
macrogol stearate 1000	
meclizinium	1 (4-chlorobenzhydryl)-4-(3 methylbenzyl) piperazine
meclizine	
melarsoprolum	2 [4 (4 6-diamino 2 s triazinylamino)-phenyl]-4 hydroxymethyl 1 3
melarsoprol	2 dithiaarsenolidine
mepacrinum	3-chloro-9-(4 -diethylamino-1 methylbutylamino) 7 methoxy
mepacrine	acridine
mephylcanum	2 methyl 2 propylamino propyl benzoate
mephylcaine	
mercurmatilinum natricum	sodium 8 (2 methoxy 3 hydroxymercuri-propyl)-coumarin 3
mercurmatulin sodium	carboxylate (sodium mercurmallylate) and theophylline
mersalylum	sodium salt of 2 [(3 hydroxymercuri 2 methoxy propyl)-carbamoyl]
mersalyl	phenoxyacetic acid
methioninum	(±) 2 amino-4 methylthio butyric acid
methionine	
methoxaminum	2 amino 1 (2 5-dimethoxyphenyl) propanol 1
methoxamine	
methylcellulosum	cellulose methyl ether containing about 30 per cent w/w of
methylcellulose	methoxyl
methylpentynolum	3 methylpentyn 1-ol 3
methylpentynol	

* This name is to replace "le orphanum" (levorphan) which had been proposed for the same substance (see *CA*
Wkly High Ores 7 311)

methyltestosteronum	17 β -hydroxy 17a methyl 3-oxoandrostene-4
methyltestosterone	
natr ⁱ acetnzoas	sodium 3-acetamido-2,4,6-trimodobenzoate
sodium acetnzoate	
natr ⁱ amidotnzoas	sodium 3,5-diacetamido-2,4,6-trimodobenzoate
sodium amidotnzoate	
neorsphenaminum	sodium 3,3'-diamino-4,4'-dihydroxyarsenobenzene 1/2 methylene
neorsphenamine	sulfolylite
neostigmini bromidum	dimethylcarbamate ester of 3-hydroxy phenyltrimethylammonium
neostigmine bromide	bromide
nicethamidum	pyridine 3-carboxylic acid diethylamide
nikethamide	
nicotinamidum	pyridine 3-carboxylic acid amide
nicotinamide	
nortestosteroni cypionas	17 β -(3-cyclopentylpropionyloxy)-3-oxoestrone-4
nortestosterone cypionate	
oestradioli benzoas	3 benzoyloxy 17 β -hydroxyoestratriene-1,3,5 (10)
oestradiol benzoate	
oestradiolum	3 17 β -dihydroxyoestratriene 1,3,5 (10)
oestradiol	
oestronum	3 hydroxy 17-oxoestratriene-1,3,5 (10)
oestrone	
pamaquinum	8-(4-diethylamino-1 methylbutylamino)-6-methoxyquinoline salt of
pamaquin	2,2'-dihydroxy 1,1'-dinaphthylmethane-3,3'-dicarboxylic acid
pentaquinum	8-(5-isopropylamino-pentylamino)-6-methoxyquinol ne
pentaquin	
pentetrazolum	pentamethylene 1,5 tetrazole
pentetrazol	
pentolonium	1,5-(1,1'-dimethyl-2,2'-d pyrrolidyl)-pentane
pentolonium	
pethudum	ethyl 1 methyl-4-phenyl-piperidyl-4-carboxylate
pethidine	
phenacatum	N, N'-bis-(4-ethoxyphenyl)-acetamidine
phenacaine	
phenacetinum	acetyl-4-phenetidine
phenacetin	
phenazonum	2,3-dimethyl-1 phenyl 5-pyrazolone
phenazone	
phenazopyridinum	2,6-diam no-3-phenylazopyridine
phenazopyridine	
phenobarbitalum	5-ethyl-5 phenyl barbituric acid
phenobarbital	
phenobarbitalum natr ⁱ um	sodium salt of 5-ethyl 5-phenyl barbituric acid
phenobarbital sodium	
phenylhydrargyn boras	equimolecular compound of phenylmercuric borate and phenyl
phenylmercuric borate	mercuric hydrosulfide

phenytoinum	5,5-diphenylhydantoin
phenytoin	
pramocainum	1-[3-(4-morpholino)propoxy]-4-butoxybenzene
pramocaine	
primidonum	5-ethyl-5-phenyl-4,6-dioxo-hexahydropyrimidine
primidone	
progesteronum	3,20-dioxopregnene-4
progesterone	
proguanilum	N ¹ -4-chlorophenyl N ³ -isopropylbiguanide
proguanil	
propoxycainum	2-diethylaminoethyl 4-amino-2-propoxybenzoate
propoxycaine	
quinisocainum	1-(2-dimethylaminoethoxy)-3-butylisoquinoline
quinisocaine	
reserpinum	alkaloid from the roots of <i>Rauwolfia serpentina</i> Benth
reserpine	
riboflavinum	6,7-dimethyl-9-(D-1-ribityl)iso-alloxazine
riboflavine	
secobarbitalum	5-allyl-5-(1-methylbutyl)-barbituric acid
secobarbital	
solasulfonum	tetrasodium salt of 4,4-bis-(3-phenyl-1,3-disulfopropylamino)-
solasulfone	diphenylsulfone
sorbimacrogoli oleas 100	mono ester of oleic acid and tripolyethyleneglycol 100 sorbitan
sorbimacrogol oleate 100	ether
sorbimacrogoli oleas 300	mono ester of oleic acid and tripolyethyleneglycol 300-sorbitan
sorbimacrogol oleate 300	ether
stilbamidini isethionas	1,2-bis-(4-amidinophenyl)-ethene di-(2-hydroxyethane) sulfonate
stilbamidine isethionate	
succinylsulfathiazolum	2-(N ⁴ -3-carboxypropionyl-sulfanilamido)thiazole
succinylsulfathiazole	
sulfadiazinum	2-sulfanilamidopyrimidine
sulfadiazine	
sulfadiazinum natricum	sodium derivative of 2-sulfanilamidopyrimidine
sulfadiazine sodium	
sulfadiazolum	N ⁴ -(3,3-dimethylacryl)-sulfanilamide
sulfadiazine	
sulfaguanidinum	N ⁴ -amidinosulfanilamide
sulfaguanidine	
sulfamerazinum	2-sulfanilamido-4-methylpyrimidine
sulfamerazine	
sulfamerazinum natricum	sodium derivative of 2-sulfanilamido-4-methylpyrimidine
sulfamerazine sodium	
sulfanilamidum	4-aminobenzenesulfonamide
sulfanilamide	
sulfaproxylum	N ⁴ -(4-isopropoxybenzoyl)-sulfanilamide
sulfaproxyline	

sulfarsphenaminum	disodium 3,3-diamino-4,4-dihydroxyarsenobenzene γ - γ -bis
sulfarsphenamine	methylenebisulfite
sulfathiazolum	2-sulfanilamidothiazole
sulfathiazole	
suspensio insulini cum zinco (amorphum)	a sterile buffered suspension of the amorphous form of insulin with
insulin zinc suspension (amorphous)	zinc chloride
suspensio insulini cum zinco (crystallinum)	a sterile buffered suspension of the crystalline form of insulin with
insulin zinc suspension (crystalline)	zinc chloride
testosteronum	17 β -hydroxy-3-oxoandrostene
testosterone	
tetrabarbitalum	5-ethyl 5-(1-ethylbutyl)-barbituric acid
tetrabarbital	
tetracainum	2-dimethylaminoethyl 4-butylaminobenzoate
tetracaine	
tetracyclinum	1-dimethylamino-1,4,6,11,12,13,14,18-octahydro-2,5,7,11,14-penta
tetracycline	hydroxy-4,6-dioxo-11-methylnaphthacene-3-carbonamide
thialbarbitalum	5-allyl 5-(α -chlorophenyl)-2-thiobarbituric acid
thialbarbital	
thiaminum	3-(4-amino-5-methyl-5-pyrimidinylmethyl)-4-methyl 5-(2-hydroxy
thiamine	ethyl)-thiazolum chloride
thiopentalum natrium	mono-sodium salt of 5-ethyl 5-(1-methylbutyl)-2-thiobarbituric acid
thiopental sodium	
thiotetrabarbitalum	5-ethyl 5-(1-ethylbutyl)-2-thiobarbituric acid
thiotetrabarbital	
tolonum chloridum	3-amino-7-dimethylamino-2-methyl-phenazathionium chloride
tolonium chloride	
tosylchloramidum natrium	sodium toluene-4-sulfonylchloramide
tosylchloramide sodium	
tretanodum	2,4,6-tri-(ethyleneimino)-s triazine
tretamine	
tricyclamol chloridum	() 1-(3-cyclohexyl-3-hydroxy-3-phenylpropyl)-1-methylpyrrolidi
tricyclamol chloride	nium chloride
tryparsamidum	sodium γ -phenylglycylamide-4-arsenate
tryparsamide	
viomycinum	an antibiotic obtained from certain strains of <i>Streptomyces puniceus</i>
viomycin	or <i>Streptomyces fiole</i>

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CHRONICLE OF THE WORLD HEALTH ORGANIZATION

CONTENTS

	Page
New epidemiological aspects of yellow fever	39
Yellow fever vaccination	46
Endemic treponematoses control International Yaws Conference in Africa	50
Laboratory aspects of the Taiwan syphilis-control programme	60
Mortality from diabetes mellitus	62

SCHEDULE OF MEETINGS

- 12-17 March Regional Advisory Group on Water Standards, Regional Office for Europe, Geneva
- 19-24 March Committee on International Quarantine third session Geneva

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NEW EPIDEMIOLOGICAL ASPECTS OF YELLOW FEVER

"Yellow fever is not a disease which has been conquered. It is not a disease which has been eliminated from consideration as a permanent threat. Too many health authorities get alarmed about yellow fever only when it becomes an urban disease overlooking entirely the fact that for the jungle populations and for rural workers who have to go into the forest yellow fever carries the same threat that it previously had for the people in the cities."

With these introductory remarks Dr Fred Soper, Director of the Pan American Sanitary Bureau, opened an informal conference on yellow fever which was held in Washington D C in December 1954 and of which a detailed account has been published.¹ The conference was attended by yellow fever specialists from the US Public Health Service, the Divisions of Preventive Medicine of the US Army, Navy and Air Force, the Rockefeller Foundation, the Gorgas Memorial Institute, the US Department of State, the Carlos Finlay Institute of Bogotá, Colombia, and members of the staff of the Pan American Sanitary Bureau.

The conference was convened for the purpose of reviewing in general the trend of yellow fever during recent decades in the Americas and in particular the situation created by an epidemic in Trinidad in 1954 and by a wave of infection which has been advancing in Central America since 1948 and which by 1954 threatened to push farther northward into regions previously free of the disease.

EPIDEMIOLOGICAL PICTURE

Jungle yellow fever definitely appears at the present time to be a problem which concerns all the countries of the American

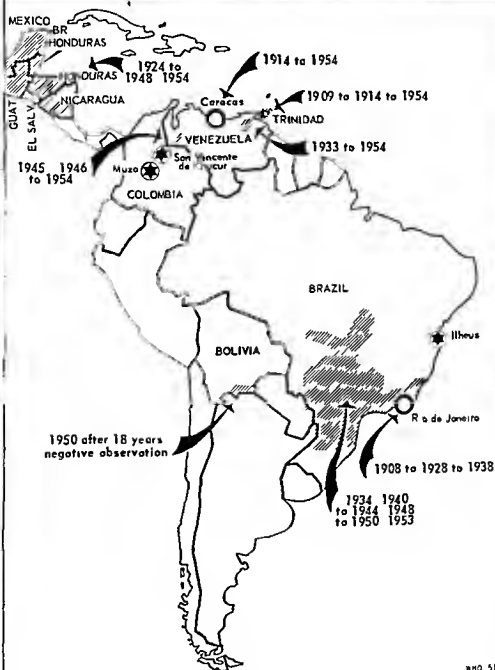
continent with the exception of the United States, Canada, Uruguay, and Chile. Its epidemiology varies in both time and space. In Brazil, for example, only sporadic cases were noted between 1946 and 1950 while from 1951 to 1953 the infection was widespread in the central and southern portions of the country. In 1954, not a single case had been notified at the time of the conference, but nine proven but non-fatal cases occurred in Pará in December. In Colombia, on the other hand, some cases have been reported every year. In the west of Venezuela, there has been a constant succession of cases in a region where there was an epidemic ten years ago, and in the east of the country the disease has reappeared after an absence of 21 years. In Trinidad, no case of yellow fever had been reported for 40 years when the disease made its appearance in 1954, and the infection in Port of Spain with *Aedes aegypti* transmitted yellow fever broke a 25 year record of no yellow fever in any maritime port in the Americas.

Fig 1 shows the cyclical movement of epidemics at various points on the continent and the long intervals—20, 30, or 40 years—between epidemic outbreaks. Fig 2 shows very clearly the direction taken by an epidemic wave which, starting in 1948 in the Panama Canal Zone, reached the north of Honduras in 1954.

These few examples give some idea of the diversity of the epidemiological aspects of jungle yellow fever. Study of the wave of infection which recently spread through some countries of Central America and which threatened others has revealed the complexity of the biological and climatic factors involved in the propagation of the epidemic outbreaks. Whereas in some cases the wave advanced at a definite speed and in the direction anti-

¹ This article has been published in the present issue of the *Journal of the American Medical Association*, Vol. 158, No. 1, p. 1-81.

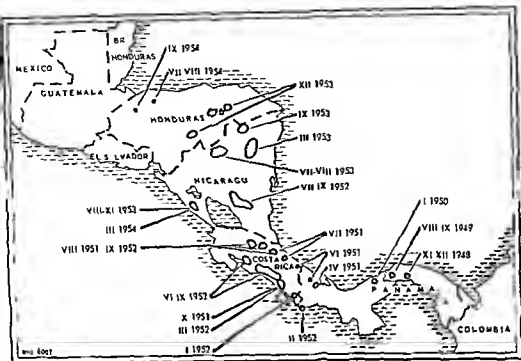
FIG 1 INTERVALS BETWEEN APPEARANCE OF YELLOW FEVER
IN SPECIFIC AREAS OF LATIN AMERICA



WHO 5669

☉ = Places known to have been constantly infected

FIG 2 JUNGLE YELLOW FEVER IN CENTRAL AMERICA 1948-54



pated in others it upset all calculations confronting epidemiologists and biologists with unknowns which the participants in the yellow fever conference described and discussed. An attempt is made in the following pages to give a broad outline of these discussions.

The Trinidad episode

The discovery of yellow fever in Trinidad was accidental. In 1953 the Rockefeller Foundation set up a virus laboratory in Trinidad to study the distribution of arthropod borne viruses other than yellow fever. As part of the investigations the sera of 700 inhabitants of the island were subjected to neutralization tests with a number of viruses including yellow fever. Yellow fever antibodies were detected not only in the sera

of older people—which was not surprising in view of the fact that there had been an outbreak of yellow fever in 1914—but also in persons between 15 and 20 years of age. This was unexpected since no outbreak of the disease had been notified since 1914.

Being thus put on their guard the workers in Trinidad continued their systematic search for virus infections and in May 1954 a case of yellow fever was discovered in the Arima hospital the virus being isolated from the serum of a patient showing only a few mild symptoms.

Hunters who were questioned disclosed that mortality among monkeys had been very high at the beginning of 1954 in some regions the stench from the dead monkeys had been such that the dogs lost the scent they were following and the hunt had had to be abandoned. Examination of monkeys which were

dying or which had died recently (supplied by hunters against recompense) confirmed the presence of yellow fever. The virus was isolated on 12 occasions from *Haemagogus* mosquitos captured on the ground.

Fifteen human cases with four deaths were reported during this outbreak. Three cases seemed to have been transmitted by *Aedes aegypti*; one of them was a case of urban fever detected in Port of Spain. The last known case in a human being was seen in October 1954.

According to the accounts of hunters an analogous epizootic took a considerable toll among monkeys in 1933-34.

Central America

The first cases in an epidemic which was gradually to advance northward in one principal and a number of secondary waves appeared in Panama in November and December 1948. The next diagnosed case occurred in January 1950 when a farmer died of yellow fever in the Chagres District west of the Canal on the Atlantic side. This case was part of the principal wave which swept on across the tropical forest of western Panama in the direction of Costa Rica. In June 1951 a case occurred on the Costa Rican frontier and then suddenly the epidemic burst forth and from July to October swept forward towards the north of Costa Rica until it reached the northern plains where it raged along a 100 mile (160 km) front.

Of 206 persons seen and treated for yellow fever in the Hospital San Juan de Dios in San Jose, Costa Rica, none contracted the disease at altitudes exceeding about 1640 ft (500 m). This was also the maximum altitude at which monkeys were observed to die of the disease.

While human cases were still occurring in Costa Rica, the virus was moving northward in the form of an epizootic forerunner and

monkeys east of the great Lake Nicaragua began to succumb.

At the beginning of 1952 a secondary wave started to move northward and another advanced towards the Pacific coast of north-west Costa Rica decimating the monkey population as it went. This epizootic onslaught contrasting sharply with the mildness of the epizootic phase in Barro Colorado in 1949 suggested that there might be an increase in virulence in the virus at least for the arboreal primates. The main wave continued its course up the Atlantic coast of Nicaragua roughly following the 1000-ft (300 m) contour.

From then on the wave of infection advanced up both the Pacific and Atlantic sides at different speeds and under different climatic and geographical conditions. Along the Atlantic coast the tropical forests in which there is heavy rainfall and no well-marked dry season favour the persistence of the insect vectors throughout the year. On the Pacific side however the deciduous tropical forests which result from the fact that there is a long dry season would seem to be unfavorable for the survival of mosquitos and therefore of the virus. But the virus survived in the area. At the beginning of the rainy season five to six months later monkeys began to die precisely where the epizootic had halted when the dry season started.

What acted as the reservoir of virus in the absence of mosquitos which were not to be found from November to April during the long dry season? The answer is not known; this is one of the numerous unknowns which the study of the epidemic wave in Central America disclosed. And it shows the danger of prophesying from observations in one place what will happen in other apparently similar places.

The last case of jungle yellow fever in Honduras was reported in September 1954 on the edge of the Ulua Valley. This valley

which is deforested and is now banana land or swamp land may perhaps form a barrier against the advance of yellow fever. On the other hand there is a strip of woodland which may afford a bridge for the virus to cross the valley and make its way into Guatemala and then southern Mexico.²

Is Central America at present experiencing a passing wave of infection which will disappear with the immunization or destruction of susceptible animals or can it become a permanent reservoir of yellow fever like those existing in certain parts of Colombia? Only long term observations can supply the answer to this question. Further even if this wave now halts at Honduras and does not pass on to Guatemala and Mexico there is no guarantee that the same will be true of the next outbreak since the epidemiology depends to a great extent on climatic and other factors which govern the abundance of the vector arthropods and vertebrate hosts.

A study carried out over a five year period at Pacora Panama where the first cases of yellow fever were diagnosed in 1948 has revealed considerable cyclical fluctuations in the density of canopy mosquitos the population of *Haemagogus speeri* -*in falco* may be much more dense in a particular month of a particular year than in the same month of another year. In 1949 and 1950 a great and apparently unusual abundance of these mosquitos caused by optimum rain fall coincided with the spread of yellow fever virus from the probable reservoir of the virus in eastern Panama. By this means the virus was able to cross the Canal Zone into western Panama.

BIOLOGICAL PROBLEMS

Jungle yellow fever is entering new geographical areas where the arthropod and mammal faunae—and therefore the trans-

mission cycle of the extra human reservoir—are different from those in countries where the disease has been studied for a long time. Thus the vertebrate hosts and the arthropod vectors are among the unknowns confronting the epidemiologist who seeks to explain the epizootic and epidemic waves of the infection in Central America.

Vertebrate hosts

The high mortality among monkeys is one of the characteristics of the Trinidad and Central American epidemics which contrasts sharply with those of South American outbreaks. In Trinidad and Central America the progress of the epidemic front could be followed by observation of the deaths among the simian populations which is impossible in South America. The reason for this lies in the differences in the monkey populations in the two areas.

In South America particularly in central and southern Brazil the common monkey is the *Cebus* monkey howler and spider monkeys being very rare. The *Cebus* monkey even though it harbours the virus does not die of the infection. In Central America on the other hand *Alouatta* (howler) and *Ateles* (spider) monkeys are much the most abundant species of monkey. They are very susceptible to the infection and die of it in large numbers. In Nicaragua for example the passage of the recent epidemic seems practically to have exterminated the monkeys inhabitants and travellers no longer hear the cry of the howlers which used to be so familiar.

This difference in hosts may have epidemiological repercussions. Where the monkeys have been largely destroyed it takes years and even decades to produce a fresh receptive population but since the *Cebus* does not succumb this monkey is able in a few years to provide a new population capable of transmitting a fresh wave of infection.

According to surveys made during 1955 in the north of Honduras and Guatemala, the virus of yellow fever is still present in the mosquito population.

Thus, in Brazil the inter epidemic periods are relatively short as compared with those in Central America, where the last epizootic outbreak among the monkeys appears to have been 25 to 30 years ago. It is suspected that this long interval between epidemics is correlated with the fact that the predominant species is practically wiped out by each epizootic wave of yellow fever.

Thus far only the differences observed among the various genera and species of primates have been mentioned. But another possibility exists that other families of mammals act as the jungle reservoir of the yellow fever virus. For as one moves up Central America into Mexico monkeys become fewer and then disappear, their distribution being roughly coincident with tropical rain forests. Other mammals such as marsupials and rodents may possibly act as reservoirs. In fact in Colombia marsupials have been experimentally infected by mosquito bites, and the mosquitos feeding on the marsupials have subsequently transmitted the infection to monkeys. In the same country hundreds of proven fatal cases of yellow fever have occurred in places where monkeys are scarce or absent. It is probable that other mammals have an important role. Marsupials must be considered; they are abundant and prolific and are thus able to ensure the rapid replacement of individuals which become immune by others which are receptive to infection. The study of marsupials—the same species of which are widely distributed in South America as well as in Central America—should be one of the priority subjects in research on the epidemiology of yellow fever in Latin America.

Vectors

In Panama, Costa Rica and Nicaragua transmission of yellow fever appears to be related to the presence of the known South American vector *Haemagogus spegazzini*

falco, which is a characteristic inhabitant of the tropical rain forest. In Honduras the situation is not so clear because monkeys dead of yellow fever were found in a region where this species does not appear to exist. *H. spegazzini falco* does not reach the north side of the Yucatan peninsula, but several other species of *Haemagogus* do occur in Guatemala and Mexico.

The great variety of observations which have been made in Central America some of them apparently conflicting emphasizes how little we really know about the epidemiology of jungle yellow fever and of the ecology of the jungle hosts and vectors of the virus. A given species—or at least what we think of as a given species—may behave quite differently in two different places or even at different times at the same place. Furthermore the results of laboratory experiments are not unreservedly comparable with what takes place in natural surroundings. A mosquito which in the laboratory shows itself to be an efficient experimental vector may turn out to be completely unimportant in its natural environment and on the other hand experience has often shown that a species which acts as a vector in nature may give dubious results in the laboratory. Therefore the interpretation of ecological and epidemiological observations must be very carefully done if erroneous conclusions are to be avoided.

Virus

In the course of research undertaken by the Rockefeller Foundation on arthropod transmitted viruses a considerable number of these were found to fall into either one of two groups according to their affinities as shown by the haemagglutination inhibition test. Group A includes the three types of equine encephalomyelitis virus, the Semliki Forest virus and the Sindbis virus. Group B comprises yellow fever, dengue, St. Louis

encephalitis Ilheus Japanese B encephalitis West Nile Uganda S Ntaya Zika and Russian spring summer encephalitis

The viruses in each group are immunologically related to each other those in group B more so than those in group A. An immune serum prepared against any one of these viruses will to a greater or lesser degree inhibit agglutination by an antigen prepared from any other member of the same group but not by an antigen prepared from the other group. The complement fixation test and the mouse protection test give confirmatory results. By means of the latter definite evidence has been obtained that yellow fever virus is related to Uganda S West Nile dengue and Japanese B.

Apart from their immunological characteristics these viruses have many properties in common they are all (except Ntaya) of approximately the same size with all of them infection of man is an accidental event in the course of a virus cycle in nature and the complete epidemiological cycle is not yet known for any of them. Monkeys are known to be involved in the cycle of yellow fever and possibly in that of dengue. Birds have been shown to play a part in the West Nile cycle. The mechanism by which the virus is maintained during the season when mosquitoes are scarce or absent is known only for Russian spring summer encephalitis the virus of which is maintained in ticks.

It can thus be seen that yellow fever virus is only one of a large group of closely related agents all of which probably evolved from a

common ancestral type. Although *Aedes aegypti* may experimentally transmit other viruses of this group its role in nature appears to be limited at present to transmission of dengue and of yellow fever.

Such immunological overlaps between viruses may be the cause of cross immunity phenomena which must be taken into account when considering the susceptibility of certain populations. The possibility cannot be excluded that mass natural immunization against one of these diseases (for example West Nile in Egypt or dengue) may produce resistance to another disease such as yellow fever.

* * *

The few points which have been singled out for brief consideration in this article from among the subjects discussed at the PASB yellow fever conference emphasize the continuing need for research in the epidemiology of jungle yellow fever on an international scale. Such research should include a study of the fundamental biological facts as they are related to the transmission of yellow fever of the taxonomy and ecology of the arthropod vectors and mammalian hosts at a variety of places where the disease occurs in endemic and epidemic forms. This all adds up to a study of the natural history of jungle yellow fever.

Two other important matters were dealt with at the conference the eradication of *Aedes aegypti* and international measures for protection against yellow fever.

YELLOW FEVER VACCINATION

About twenty years ago, when vaccination against yellow fever was first applied no one could have foreseen the enormous advantages which would accrue to countries where the disease was endemic and the security which vaccination would give to populations exposed to risk of infection

Yellow fever vaccination was made one of the international measures of protection by the International Sanitary Convention for Aerial Navigation of 1944, amending the Convention of 1933. According to the amended Convention. A valid anti yellow fever inoculation certificate is one certifying that the bearer has been inoculated against yellow fever, with a vaccine and by a method approved by UNRRA. These provisions placed yellow fever vaccine under international control. They did away with quarantine measures, and travellers were no longer exposed to the arbitrary decisions of health authorities, since only one type of vaccination certificate was recognized as valid.

The International Sanitary Regulations which were adopted in 1951 by the Fourth World Health Assembly and which replaced the conventions in force up to that time, contain the following provisions relating to yellow fever

Vaccination against yellow fever shall be required of any person leaving an infected local area on an international voyage and proceeding to a yellow fever receptive area.

A person in possession of a valid certificate of vaccination against yellow fever shall not be treated as a suspect even if he has come from an infected local area.

The principle of approval of the vaccine figuring in the 1944 Convention was retained and, at present, yellow fever vaccination certifications are issued under the authority

of WHO. The Organization has the task of designating laboratories approved for the preparation and testing of yellow fever vaccines and has thus assumed a considerable responsibility. Continually expanding research and ever increasing experience acquired during vaccination campaigns raise problems which must be taken into account in international provisions for protection against yellow fever, and the Organization must keep abreast of such research and experience.

These and other considerations are reflected in a monograph on yellow fever vaccination which WHO has recently published¹ and in which the main aspects of the subject are dealt with by eminent specialists who have taken an active part in research in this field.

Dr K. C. Smithburn of the Rockefeller Foundation, describes, in the first chapter, the basic principles of yellow fever immunization and the role of passive and active immunity as well as that of immunological tests in the diagnosis of the disease and identification of the virus. Subsequent chapters, by different authors deal with the various vaccines and the duration of the immunity which they confer, mass vaccination, post vaccination accidents and the international regulations concerning yellow fever.

VACCINES AND VACCINATION TECHNIQUES

Dakar vaccine

The first vaccine against yellow fever consisted of a measured quantity of neurotropic virus neutralized by a corresponding

¹ World Health Organization (1956) *Yellow fever vaccination*
Geneva (World Health Organization Monograph Series No. 30)

amount of specific serum. This strain of virus had been transmitted to monkeys by the bites of *Aedes aegypti* fed on a patient in Senegal. In 1928 the virulent organs of one of the monkeys infected in this way were transported in a frozen state to European and American laboratories where the virus was known henceforward under the name of "French strain". After a certain number of passages on mouse brain tissue this virus became modified in such a way that it no longer brought about the death of monkeys inoculated subcutaneously but caused mild illness followed by lasting immunity. These properties made it possible to consider using the virus as a vaccine.

In 1931 immunization tests on man were initiated using the French strain then at its 105 176th mouse passage with the addition of specific serum intended to neutralize the pathogenic action of the virus. Later the addition of serum was dropped.

From 1934 on mass vaccination was carried out in the French territories in Africa south of the Sahara. In 1939 subcutaneous inoculation was replaced by the scarification method and since 1941 this form of vaccination has been compulsory in all the territories of French West and Equatorial Africa.

For eight years the vaccine produced by the Institut Pasteur of French West Africa at Dakar has been a virus at its 258 260th passage through mouse brains stored in ampoules in the form of dried cerebral tissue of white mice (Fig. 1). At the time of vaccination the vaccine is suspended in a solution of gum arabic and inoculated by scarification on the upper arm. UNRRA and later WHO recognized the validity of the Dakar Institut Pasteur method of vaccination. Between 1939 and March 1954 the Institut produced more than 84 million doses of vaccine. Dr C. Duneux, former director of the Institut describes in two articles the technique for the preparation and storage of the vaccine and its application.

17D vaccine

From 1931 on an attempt was made to modify the yellow fever virus by other methods which would reduce not only its viscerotropism but also its neurotropism or which at least would not augment it. The tissue culture of a pantropic strain coming from an African of the Gold Coast (the Asibi strain) produced a variant 17D which showed attenuated neurotropism for the mouse and for the monkey as well as attenuated viscerotropism for the latter. When inoculated intracerebrally this strain no longer brought about fatal encephalitis in the monkey but protected it against highly virulent pantropic strains. The strain could be readily cultivated on chick embryo had the advantage of not introducing into the human organism latent viruses from the mouse and appeared suitable for use in man with a minimum of risk.

17D vaccine has been used since 1937 and is at present employed in most parts of the world. Dr H. A. Penna in charge of the Yellow Fever Laboratory of the Instituto Oswaldo Cruz, Rio de Janeiro describes in detail the production of the vaccine in this institute which houses one of the principal laboratories preparing yellow fever vaccine. Every week this laboratory receives 2000 eggs for the culture of the virus corresponding to a monthly output of 15 million doses of vaccine. New laboratories which are under construction will make it possible to double the output. The vaccine is put into ampoules in which the embryo suspension is shell frozen and dried.

In a second article the same author considers subcutaneous vaccination techniques with this vaccine particularly as practised in Brazil.

17D and scarification

Since the scarification method had given excellent results with Dakar vaccine an

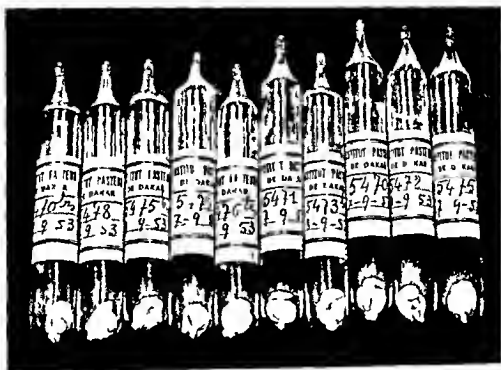
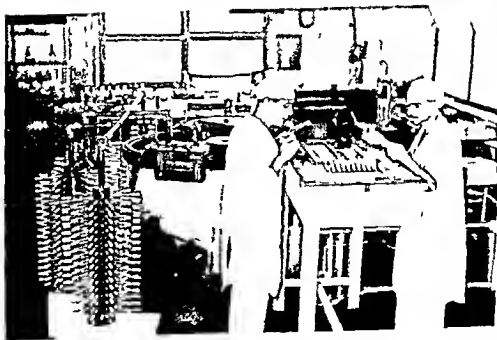


FIG 2 GENERAL VIEW OF DESICCATING ROOM



One lot of vaccine is in the final stage of desiccation. Another lot is being frozen in ampoules and being placed in the chilled desiccator (hidden by the deep-freeze)

attempt was made to apply it to vaccination with 17D

Dr G W A Dick of Queen's University Belfast, discusses the advantages of this method. When administered by scarification 17D vaccine is an excellent antigen even in high dilutions. It is probably even more active when so administered. This method is more economical since all the embryo suspension—coming from the decapitated embryo—may be used whereas a third is discarded in the preparation of subcutaneous vaccine. Less strict bacterial sterility is acceptable which reduces the cost. It would seem that to give the same protection smaller amounts of antigen are required when administered by scarification than by the subcutaneous route. The author suggests that mass vaccination with 100 mouse intra cerebral LD₅₀ of virus should be investigated. If this dose were found to be adequate a 5 ml ampoule would be sufficient to vaccinate 1000 persons thus reducing the cost of vaccination to one tenth of the present figure. The author also discusses the advisability of combined smallpox yellow fever vaccination.

DURATION OF IMMUNITY

The duration of the immunity conferred by yellow fever vaccine and the moment when the antibodies appear in the blood have been the subject of experimental research in man and animals since 1931. G. Courtois, Director of the Stanleyville Medical Laboratory and C. Duneux & R. Koerber of the Institut Pasteur at Dakar arrive at similar conclusions for 17D vaccine and for Dakar vaccine respectively. Originally put at 4, 6 or 9 years the duration of immunity is now estimated to be at least 12 years in the light of antibody titrations carried out in 1953 on subjects vaccinated in 1941. It is possible as Mahaffy has suggested that it will eventually be found that immunity is lifelong.

At present the vaccination certificate is valid for six years. From the tenth day following vaccination the antibodies present in the serum ensure appreciable protection. This period is a little shorter in the rhesus monkey. However in the monkey as in man a certain resistance to infection appears before the antibodies are detectable in the serum. The nature of this protection is still unknown.

MASS VACCINATION

Ever since standard methods for the preparation of large quantities of vaccine have been available mass vaccinations have been carried out in Africa and in South America—large scale vaccination commenced in 1934 in the French territories south of the Sahara and in 1937 in Brazil. Dr C. Duneux in an article on this subject states that the number of vaccinations in the French territories exceeded 56 million at the end of 1953 which meant that each inhabitant had been vaccinated twice. After 1943 the prevalence of the disease decreased although at that time only half the population had been vaccinated. During the past 20 years the number of cases of yellow fever has continually decreased dropping from 134 in the period 1934-48 to 5 in the period 1949-53.

In South America nearly 22 million persons were vaccinated with 17D vaccine between 1937 and 1954 according to Dr C. de Souza Manso in an article on mass vaccination in Brazil. This author also describes the preparation of vaccine for use in the field and discusses the influence of vaccination on the spread of jungle yellow fever.

POST VACCINATION ACCIDENTS

The question of post vaccination accidents has given rise to much controversy. Dr G. Stuart, former Chief of the WHO Quarantine Service, discusses in detail the reactions caused during the past 15-20 years by the various types of vaccine with or without the

addition of serum. Some reactions do not affect the central nervous system (e.g. allergic reactions, fever, serum hepatitis), others, occurring 10-20 days after vaccination, include a meningo-encephalitis syndrome with motor, sensory, mental, or lethargic manifestations.

The Dakar vaccine, in particular, has given rise to accidents, sometimes fatal, in the French African territories and in Nigeria, Costa Rica and Nicaragua. Encephalitic accidents have also occurred with 17D vaccine and mild sporadic cases have been reported in very young children in the years 1953-55.

Several explanations have been offered for these accidents. It has been suggested that the cause of the accidents with the Dakar vaccine is the increased neurotropism of virus cultivated on the mouse brain or the activation of a virus latent in man. However, a fall in the titre of the vaccine because of faulty preservation of the ampoules in the field would seem more likely to be responsible.

INTERNATIONAL REGULATIONS AND RELATED PROBLEMS

Although its basic principles have been established, vaccination against yellow fever continues to be the subject of research and technical improvement. The responsibility assumed by WHO in approving vaccines intended for international use makes it necessary for the Organization to keep in close touch with such work as has been previously suggested.

In an article on the role of WHO, Dr P. H. Bonnel, of the Division of Epidemiological and Health Statistical Services, after having outlined the history of the conventions and international regulations relating to yellow fever vaccination, enumerates the requirements which vaccination certificates must fulfil in order to be accepted in international traffic, and lists the problems which WHO faces in connexion with the approval and control of yellow fever vaccines.

ENDEMIC TREPONEMATOSES CONTROL*

International Yaws Conference in Africa

In the rural areas of the tropical belt of the world live about 400 million people of whom approximately half are exposed to the risk of infection with yaws and other endemic treponematoses. Mass treatment campaigns, based on the use of single injections of long acting penicillin have in recent years given impressive results in many of these areas. These campaigns have been carried out under the supervision of professionally qualified personnel by simply trained auxiliaries who can subsequently be employed in other field activities and in local health services.

In some countries such campaigns have become an important factor in the development of comprehensive rural health services.

In November 1955, WHO convened a second international conference on yaws control to review the present situation and to provide technical guidance to health administrations in their future plans for treponematoses control programmes. This conference which was attended by 53 participants from 30 countries was held in Enugu, Eastern Nigeria. It was fitting that it should have taken place in Africa for about half of the estimated 50 million cases of yaws which exist in the world are found in that continent.

* This account was prepared by Dr R. R. Wilkox, WHO Treponematoses Consultant.

The Eastern Region of Nigeria was chosen as the site of the conference because an active yaws-control campaign is in progress there which made it possible for participants to observe field activities

The conference considered that with the public health techniques now available the endemic treponematoses could be eliminated as health problems in the less developed areas. Many health administrations had already launched treponematoses-control campaigns in the Western Pacific Region, in South East Asia and in the Americas and projects were being developed in Africa. Over 50 million persons had been examined and 15 million treated in such campaigns throughout the world with assistance from WHO and UNICEF. However further work was needed in these international campaigns.

The conference proposed that a co-ordinated offensive against the endemic treponematoses particularly yaws be undertaken in Africa with assistance from WHO and UNICEF over the next few years.

At the same time participants at the conference emphasized the need for continuing studies on the fundamental problems relating to the treponeme: the host and the environment and for assembling all available data on the nature, extent, epidemiology and biology of the endemic treponematoses. Much new information on the latter subject was forthcoming from the International Treponematoses Laboratory Center at Johns Hopkins University in Baltimore Md USA. Information on the prevalence of the various treponematoses—sporadic venereal syphilis, endemic syphilis, yaws and pinta—in different parts of the world was also needed. The pooled experience of those present at the conference gave evidence for example of a greater prevalence of endemic syphilis in Africa than had been realized.

The conference was concerned particularly with the technical aspects of mass campaigns to control the endemic treponematoses.

PLANNING AND CONDUCT OF CONTROL CAMPAIGNS

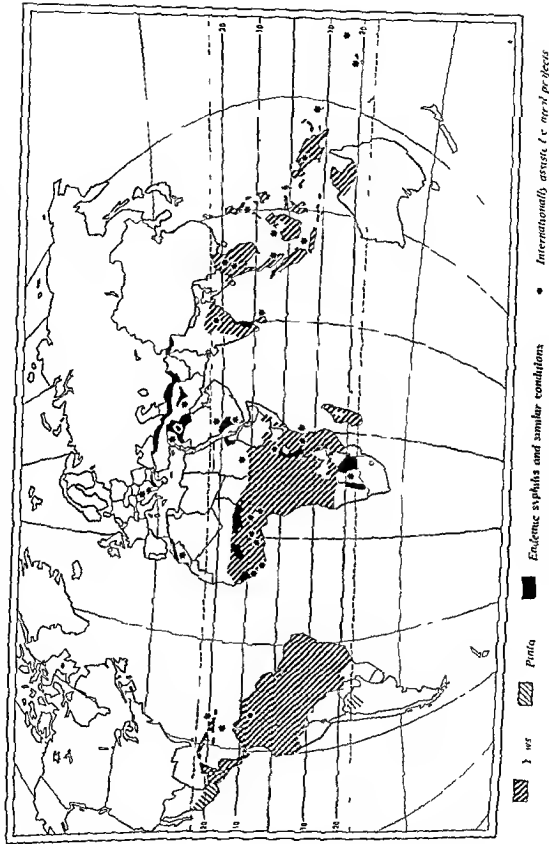
In planning a yaws-control campaign all the stages of such a campaign should be taken into account—not just the period of mass treatment but also the consolidation phase and the eventual integration of yaws control activities into the permanent health organization of the country. If all stages are not provided for there is danger that although yaws-control teams may succeed in eliminating the disease in a particular area, absence of facilities to maintain the control will lead to ultimate failure.

Conference participants expressed the fear that "local conditions" might sometimes be used as a convenient excuse for inadequate performance of control activities. These conditions should influence only the method of approach, the basic principles of endemic treponematoses control remaining unchanged regardless of place.

General approach

In principle multipurpose activities (i.e. health activities in addition to those directed against the endemic treponematoses) should be the ultimate goal of a programme to control endemic treponematoses. At the stage of mass treatment, however, the main effort should be directed against yaws—or the endemic treponematoses in question—although some secondary activities such as simple out-patient treatment of other illnesses are unavoidable and indeed desirable. In many areas there are diseases more serious than yaws (e.g. sleeping sickness and malaria) and under such circumstances it may be desirable to concentrate first on the more serious disease, giving yaws priority as soon as the control of the other disease has been achieved. Other health activities such as leprosy case finding, smallpox and yellow fever immunization and others can sometimes profitably be combined with a yaws control programme. For example during

FIG 1 GEOGRAPHICAL DISTRIBUTION OF THE NON VENEREAL TREPONEMATOSSES
AND INTERNATIONALLY ASSISTED CONTROL PROJECTS



mass screening for yaws in the Nsukka Division of Eastern Nigeria with a population of approximately 350 000 about 1700 persons suffering from leprosy were discovered and directed to appropriate centres for treatment. However such activities should not be permitted to weaken or retard the rapid expansion of the endemic treponematoses control campaign.

Community co-operation

The conference participants stressed the necessity of ensuring that all levels of the

community fully understand the objectives of the treponematoses-control campaign. It is particularly important that the co-operation of local leaders and headmen be secured as an aid in obtaining the necessary coverage of the population. The spectacular results of treatment of yaws with penicillin are most effective in gaining the co-operation of the people. However the effect is maximal when there is much yaws and interest is likely to wane during the period of resurveys when only a few cases are found.

FIG. 2. MASS CAMPAIGNS AGAINST YAWS IN AFRICA—I



It is largely owing to the dramatic results obtained with appropriate control measures in mass campaigns that the populations co-operate fully with the public health personnel. Above: Liberian boy disfigured by yaws lesions and a fortnight after treatment.

Population coverage

It was accepted by all the conference participants that 100% coverage of the population should be the aim in the initial treatment survey, and a coverage of less than 90% was considered inadequate. Comprehensive data from Indonesia supported this view.

There are several methods by which full coverage can be achieved. One is by house-to-house visiting, making a nominal roll. Another is by enlisting the aid of the local chief and village headman in assembling the entire population at a convenient place and checking the total attendance of the particular community with the most recent census figures if such figures are available.

Penicillin treatment

Single injections of a long acting penicillin preparation continue to give impressive results in the treatment of yaws, and have also been successfully used in the mass treatment of endemic syphilis.

To date there are no signs of penicillin resistance in the treponeme. Side reactions which have been reported in small numbers in some countries are so far not of public health importance in mass campaigns. In fact in the rural areas where penicillin is being used in mass treatment of the treponematoses this drug has not been employed previously, and sensitization reactions are rare. The conference participants felt that now was the time to take advantage of this highly favourable situation.

The usual adult dose is a minimum of 12 mega units of a PAM preparation meeting WHO specifications,* with proportionately lower doses for children. This dose represents a calculated risk—a compromise between maximum efficacy and practical economy—aimed as a public health measure at curing the vast majority of infectious cases

and at stopping the transmission that maintains the reservoir of infection. It is successful in curing a high proportion of latent cases and late cases as well.

It was noted at the conference that three fourths of infectious yaws cases are in children below 15 years of age and that in these cases progressively lesser amounts of penicillin have been given according to age. However, reports of a carefully controlled series of dark field positive cases of early yaws in Haiti revealed highly satisfactory results with single injections of 0.6 mega units of PAM and the conference participants thought it advisable to recommend this dosage for all children under 15 years of age. In view of the decrease in the price of penicillin in recent years the extra cost involved, when the whole cost of a campaign is taken into consideration, is no longer as significant a budgetary factor as formerly.

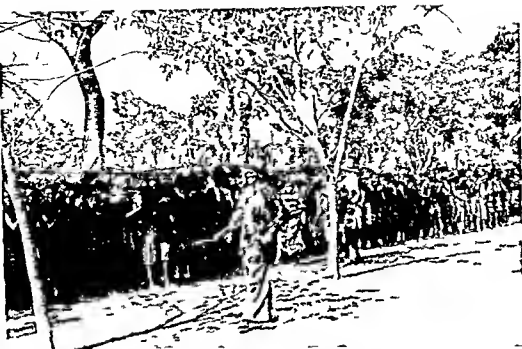
There was general agreement that half of the dose of penicillin administered to clinical cases should be given to latent cases and to contacts.

The results obtained with the newer benzathine penicillins in the treatment of yaws were reviewed at the conference. Dose for dose, benzathine penicillin gives a more prolonged penicillinaemia than PAM and it has been reported to be more efficient in the treatment of hyperkeratosis. However, unit for unit it is more expensive, its durability in the tropics in the pre-suspended form is less, and many observers have reported local pain with its use. More information is required before replacing PAM by benzathine penicillin can be considered in the treatment of yaws.

Treatment policies

The total reservoir of yaws consists of clinical cases, latent cases and those in the incubation period. Clinical cases may be early infectious cases or late cases. The

* See *Wld Hlth O & techn Rep Ser* 1953 63 72, 55



Orderly organization is an important element in the success of a mass campaign. Above: A line of Ngerians awaiting treatment. The chief who maintains order may be seen walking in the foreground.

number of infectious cases in relation to the latent cases is usually small and since primary lesions are generally few the number of cases in the incubation period at any one time is also small. The greatest problem arises from early latent cases which may give rise to infectious relapses for some years. Late latent cases which contribute much less to the spread of the disease may give rise to incapacitating and mutilating late lesions. The latent cases cannot be accurately determined without the use of serological screening which is not usually feasible in a mass campaign on account of the cost and the loss of speed involved. Finally there are the contacts to be dealt with.

In view of these considerations it is evident that treating clinical cases alone is unlikely to

eliminate yaws as cases in the incubation period and early latent cases are missed. Reports of experience in the Philippines and in Indonesia have confirmed this. Even with repeated resurveys at short intervals the reduction in prevalence is uneconomically slow. Some form of mass treatment which reaches non clinical cases that are liable to relapse with infectious lesions must therefore be devised.

To date three policies of mass treatment have been tried.

(1) Total mass treatment arbitrarily recommended when the prevalence of active cases exceeds 10% of the population. Under these circumstances the entire population is treated a full dose of penicillin being given



*To use time to the best advantage it is essential that the examiners be supplied with a regular flow of patients
Above A group of Nigerian women waiting their turn to be examined*

to clinical cases and half the dose to latent cases and to contacts

(2) Juvenile mass treatment recommended when the prevalence of active yaws is within 5-10% and consisting of the treatment of all children under the age of puberty in a given area and of infectious cases and their contacts regardless of age. This method was devised to cover the largest number of those likely to develop infectious lesions with the greatest economy in penicillin.

(3) Selective mass treatment in which only active cases and household and other obvious contacts are treated. This is recommended when the prevalence of active yaws is less than 5%.

The general opinion at the conference was that total mass treatment might well be employed even when lower prevalences than those indicated above are found and that juvenile mass treatment was preferable to selective mass treatment. Although at first sight total mass treatment seems extravagant

of penicillin it is likely to be more economical in the long run because the sorting out of household contacts is avoided the speed of the campaign is increased and resurveys are needed less frequently

Use of serological tests

It was agreed that the use of serological testing in a total mass campaign in which all persons are treated is unnecessary and wasteful of time equipment and personnel. In hyperendemic areas the prevalence of active cases is a sufficiently sensitive index for all practical purposes. In areas of low prevalence in which active cases and household and other contacts only are usually treated serological screening is used to identify latent cases.

Serological testing is desirable in preliminary pilot studies made in the planning stage to determine the prevalence of treponematoses and therefore the nature of the campaign to be undertaken. It is also useful in appraising the results of the mass campaign. For the latter purpose sample surveys may be used and means of carrying out such surveys were discussed at the WHO conference. Evidence was presented to suggest that use of cardiolipin antigens in conventional serological tests in Africa reduces the percentage of biological false positive results.

Conference participants felt that the latest advances in the serodiagnosis of the treponematoses—such as the treponemal immobilization test the treponemal agglutination test and the treponemal complement fixation test—were unlikely to be of value in a mass campaign. They should be used however on a research basis to check the results obtained by the teams with conventional tests to determine the prevalence of biological false positive results and to provide data about immunity and other problems relative to the endemic treponematoses.

Resurveys

Resurveys are used not only to ensure the success of the initial treatment survey but also to obtain data by which the success or failure of the campaign as a whole may be assessed. During resurveys cases missed in the initial survey which have become active in the meantime relapsing cases and cases which have moved into the area—plus the contacts of all of these groups—are found and treated. Provided that adequate coverage has been obtained in the initial treatment survey the greatest danger is from immigrants into the treated area. This emphasizes the need for simultaneous campaigns in adjacent areas (see below).

The first resurvey should be undertaken between 6 months and a year after the initial treatment survey depending on the degree of coverage at the beginning. Subsequent resurveys should take place approximately every 12 months and should be continued until the local rural health services are sufficiently developed to take care of the few active cases that are likely to occur.

Appraisal of results

The conference participants considered post treatment evaluation studies from a number of areas. In Haiti for example sample surveys made approximately two years after treatment have shown that the prevalence of yaws has been reduced to 50 per 10 000 of the population for all cases of yaws and 15 per 10 000 for infectious cases. And in the Nsukka Division of Eastern Nigeria where before treatment the prevalence of active yaws was 1380 per 10 000 of the population (infectious cases 300 per 10 000) the rate had decreased in the various subdivisions to 0-30 per 10 000 of infectious cases one year after treatment.

Such post treatment evaluations have provided evidence that the prevalence of yaws can be rapidly and effectively reduced by

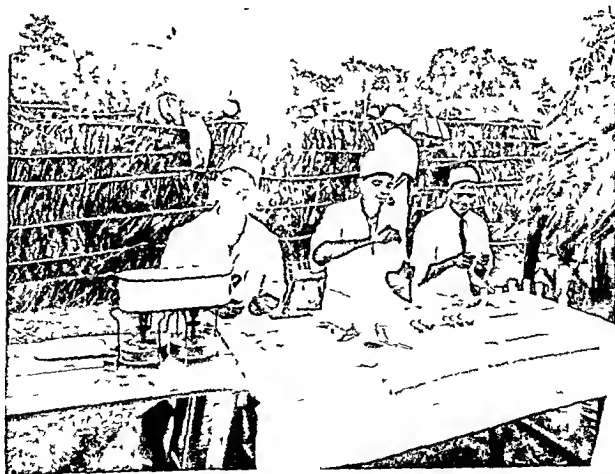
single injections of repository penicillin to a level at which it no longer represents an immediate public health problem

GEOGRAPHICAL EXPANSION OF A MASS CAMPAIGN

The conference was concerned with the risk of reintroduction of infection from outside a treated area. The endemic treponematoses recognize no geographical or tribal frontiers and movement of people to and fro across such frontiers is frequent.

The most effective way of preventing reintroduction of infection is through uniform expansion from the centre of operations and co-ordination of the simultaneous development of similar campaigns in adjoining territories. It is logical therefore, that health administrations of countries in which yaws and endemic syphilis are found should be urged to co-ordinate their activities in an effective manner. This is particularly important in Africa, which has many interlocking political frontiers totally unrelated to geographical barriers which might limit the spread of disease. Every day countless

FIG 5 MASS CAMPAIGNS AGAINST YAWS IN AFRICA—IV



Efficient organization of the various stages of the procedure is vital to the proper running of a mass campaign. Above: The syringe table. The caps are removed from 10 ml vials of penicillin, the syringe is filled and the needle attached. After each injection the needle is discarded and a sterile needle used for the next injection.

thousands cross these frontiers and migrations for religious or economic reasons are constantly taking place on a continental or subcontinental scale

In connexion with the Africa wide co-ordinated offensive against the endemic treponematoses mentioned earlier it was proposed that a conference of health administrators be convened as soon as possible to prepare this vast campaign

VENEREAL SYPHILIS AND OTHER VENEREAL DISEASES

Reliable figures concerning the prevalence of the different venereal diseases in Africa are scanty. Such diseases are concentrated largely in the towns although in some areas gonorrhoea has spread widely into rural districts as well

It was observed at the conference that the traditional methods of control based on contact tracing of individual cases are unlikely to succeed in Africa at present. The facilities for such work are not yet sufficiently developed

Of some concern is the possibility that venereal syphilis might be reintroduced into areas cleared by mass campaigns and find the environment still favourable for endemic spread. Conference participants therefore considered that when campaigns against the endemic treponematoses are being planned provision should be made for co-ordinating a programme to deal with venereal syphilis in the towns

POST-CAMPAIGN ACTIVITIES

In the less-developed countries an essential factor in the development of health services is the establishment of local rural health services which are however largely dependent for their success on the goodwill of the

people they serve. The conspicuous results of penicillin treatment in the endemic treponematoses can be immediately understood by the general population and help to give them a broader understanding of the importance of good health thus providing a basis for popular participation in future health work. It is therefore appropriate to time the carrying-out of plans for rural health centres to coincide with campaigns to control the endemic treponematoses. It is preferable that these centres should be functioning before the campaign is over in a given area so that they may assist in the control and ultimately the eradication of the disease and help to reduce the number of resurveys. In this way too staff from the control campaign can be integrated into the permanent health structure of the country.

Post campaign activities should also be co-ordinated with those of other services—agricultural veterinary educational and voluntary social and political organizations. Two particularly important developments are the improvement of communications and the improvement of sanitation including the provision of adequate water supplies to villages

CONCLUSIONS

In the past efforts to control endemic treponematoses frequently failed because of inadequately organized and co-ordinated campaigns, incomplete coverage of the population, emphasis on the clinical rather than the epidemiological aspects of the disease, the unsuitability of metal chemotherapy for mass campaign work and unchanged environmental conditions which favour the spread of disease. Today most of these factors have been eliminated. Penicillin has proved itself an effective weapon for mass control work, the treponeme has shown no signs of resistance and penicillin side

reactions are not as yet of public health importance. Mass campaigns are now relatively inexpensive and involve little or no capital outlay. The total cost of campaigns in South East Asia—including penicillin transport, local staff administration and other expenses—is now US \$60 000 to \$80 000 (£20 000 to £30 000) per million persons examined. In a word, eradication of the endemic treponematoses is within reach. Indeed it is of great economical and physical importance for in yaws for instance the onset of infection occurs in children resulting in incapacity for work among the young and in mutilation and invalidism in an appreciable percentage in the existing and future labour force. Thus in several campaigns more than 50% of the yaws patients treated had disabling palmar and plantar lesions while some 10% had late disfiguring or crippling lesions.

By the rapid and obvious results of penicillin treatment an understanding of health and a co-operative attitude among the population are created which are favourable to the development of further health activities and which provide an opportunity to strengthen and co-ordinate rural health services in the wake of the control campaign and to raise the standard of living of the people.

In many countries and regions of the world co-ordinated campaigns are already actively under way but in Africa which contains the largest continental reservoir of endemic treponematoses estimated at 25 million cases of yaws alone, they are only beginning. The conference participants therefore recommended that an offensive to control endemic treponematoses be undertaken in Africa on a continental scale under the general co-ordination of WHO.

LABORATORY ASPECTS OF THE TAIWAN SYPHILIS-CONTROL PROGRAMME*

A syphilis control project which included the establishment of an island-wide serological laboratory service, was started in Taiwan in the autumn of 1953 by the Government and WHO with UNICEF assistance. Though certain serological tests for syphilis had been carried out in a few provinces of the island before the advent of the control programme, no serological service had been made generally available to the public. The tests were moreover of questionable reliability since there had been no attempt to standardize them.

The organization of laboratory services was part of the general syphilis control programme. A demonstration area was set

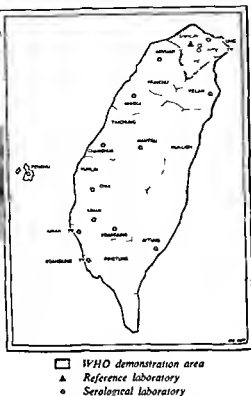
up to serve as a training centre for all personnel. This area comprised all of Taipei *hsien* including the port city of Keelung. A syphilis control centre was located at the Taipei Provincial Health Centre and a model project was established at the Taipei Provincial Hospital both in Taipei City. A serological reference laboratory to serve the laboratories in the *hsien* or provinces was established at the Taiwan Serum Vaccine Institute, Shinlin, about two miles outside the city of Taipei.

In all 21 laboratories were organized in 10 provinces (see Fig. 1) four in the demonstration area, counting the reference laboratory, one in each of the *hsien* and one in each of the major cities.

Training of clinical and other personnel for the control programme was undertaken in

*Based on reports by Dr Ping Nan Wang, Chief Reference Laboratory, Taiwan Venereal Disease Control Programme, and Mr W. H. Gaub, WHO Laboratory Adviser for this project, and on reports of Dr O. Idsøe, WHO Chief Medical Adviser for the project.

FIG 1 DISTRIBUTION OF TAIWAN LABORATORIES 1953-55



tinely taught to and employed by the technicians were the VDRL slide test using cardiolipin antigen and the Kahn test. The qualitative and quantitative VDRL tube test was performed upon spinal fluid specimens.

From the beginning of the project in the last quarter of 1953 to the last quarter of 1955 427 452 blood specimens were tested. The data which follow show the gradual increase in the number of operating laboratories and in the volume of work up to the first quarter of 1955.

Period	Number of laboratories	Number of blood specimens	Reactions (%)	Total tests performed
4th quarter 1953	1	3 193	13.0	4 981
1st quarter 1954	1	1 905	21.4	2 829
2d quarter 1954	10	19 444	17.3	25 668
3d quarter 1954	20	35 339	20.9	46 392
4th quarter 1954	21	60 460	17.1	79 170
1st quarter 1955	21	84 697	13.6	106 697
Totals	21	205 318	16.3	266 142

Periodically all the laboratories were visited by the WHO appointed venereologist, the laboratory adviser, and the national chief of the reference laboratory to check on the performance of the standardized procedures. In addition the technicians' test performance was subjected to an annual evaluation. A high level of performance was observed among the laboratories in a survey made in late 1954 and early 1955 in which the minimum standards were specificity—no less than 99.0% sensitivity—not over 10% less than that attained by the referee laboratory with the same test and in the same survey. Refresher courses were arranged for technicians who failed in the evaluation survey and other courses of a similar nature have been planned for interested personnel.

the syphilis-control centre and in the "model project". Training of laboratory personnel was done at the reference laboratory. Altogether over six hundred physicians, nurses, and auxiliary personnel were trained over a period of two years, and twenty-eight technicians were given eight weeks of intensive instruction not only in the performance of routine serological procedures but also in the operation of a serological service. The reference laboratory also participated actively in the training of medical and nursing personnel.

The new laboratory service included standardization of equipment, techniques, and antigens and reagents, and uniform reporting and record keeping. The procedures rou-

The laboratory participated in mass surveys numbering 104, assisted in establishing a field laboratory in conjunction with a survey conducted in an isolated coal mining village near Keelung, undertook a comparative study of the VDRL slide Kline standard slide Kahn standard and Meinicke slide (Kvittingen technique) tests and co-operated with the International Trepon-

matosis Laboratory Center in Baltimore Md., USA, in the study of the new *Treponema pallidum* agglutination test

This project in Taiwan has demonstrated that standardization of laboratory services results in economy of field and clinic operation and greatly facilitates dealing with problems of supervision and co-ordination in a national syphilis control programme

MORTALITY FROM DIABETES MELLITUS

Sugar diabetes (diabetes mellitus) has always been considered an important cause of morbidity and mortality not only in itself but more particularly on account of the way in which it aggravates the course of a number of other disorders. There is little available international information on morbidity but a series of statistical tables with explanatory notes was recently published in the *Epidemiological and Vital Statistics Report*¹ and some of these tables give information dating back to the beginning of the century.

Diabetes was already included in the Bertillon Nomenclature which was adopted as the international list in 1893. From the original rubric the following were later separated: diabetes insipidus (1909), diabetic pigmentary cirrhosis or bronzed diabetes (1938), renal glycosuria or renal diabetes (1948).

For obvious reasons these changes had very little effect on the statistical series. The same cannot be said, however, of a number of variable factors—no doubt common to all statistics on mortality by cause but particularly noticeable in so far as diabetes is concerned. Among these factors are: inexact diagnoses of causes of death, imperfection of death registration systems, changes

in the population structure and particularly variations in the criteria adopted for the determination of cause of death when—as happens more and more frequently—several diseases are mentioned on the death certificate.

In order to overcome this difficulty a number of countries have established rules for the selection of the cause to which death is to be attributed. These rules, however, are not uniform and in some cases they have been altered on the coming into force of a new nomenclature. There are therefore considerable divergencies in the statistical series for deaths from diabetes mellitus not only from one country to another but also in one and the same country over different periods. The only period to which this perhaps does not apply is that of the last few years since the application of the provisions of the last revision of the International List (1948) and it will thus be realized that comparison of these series could lead to serious mistakes. The figures in the tables in the *Report* in question cannot be considered as anything more than a basis for more thorough study. Previously no such basis was available.

Below are given some examples of the consequences of the adoption of new rules

TABLE I DISTRIBUTION IN DENMARK ACCORDING TO TWO METHODS OF CLASSIFICATION OF UNDERLYING CAUSES OF DEATHS IN CONNECTION WITH WHICH DIABETES MELLITUS IS MENTIONED

Death attributed to	Deaths to selection of underlying cause	New rules for selection of underlying cause
Diabetes as underlying cause	4	7
Other underlying causes including diseases of the circulatory system	46	93
malignant neoplasms	72	55
diseases of the genito-urinary system	10	10
tuberculosis (all forms)		2
diseases of the respiratory system	1	5
Other cause	8	11

With respect to 1939 medical certificates of death from July 1949 to 30 June 1951 percentage of certificates mentioning diabetes mellitus

for the determination of the underlying cause of death

In *Canada* the introduction in 1950 of the new International List caused the number of deaths attributed to diabetes mellitus to drop from 2749 in 1949 to 1544 in 1950 giving a drop in specific mortality from 20.5 to 11.3 deaths per 100 000 inhabitants. This is a purely fictitious decrease for if the 1949 data had been reclassified on the basis of the new international criteria only 1508 deaths would have been attributed to diabetes mellitus in that year.

In the *United States of America* the figures for deaths from this same cause dropped from 38 638 in 1948 to 25 089 in 1949 the year in which the sixth revision of the International List was applied. This is also a fictitious drop from 26.4 to 16.9 deaths per 100 000 inhabitants.

TABLE II DEATH RATES FROM DIABETES MELLITUS IN CERTAIN COUNTRIES BY SEX 1951-53

(Mean annually per 100 000 population of each sex)

Country	Males	Females	Total
Union of South Africa			
European population	65	135	100
Canada	90	131	111
United States of America	127	198	163
Ceylon	65	48	68
Israel	29	41	35
Japan	24	25	24
German Federal Republic	77	131	106
Austria	58	91	78
Denmark	4	68	7
Spain	47	78	64
Finland	42	77	60
France	79	138	109
Iceland	69	78	74
Italy	75	111	92
Norway	61	82	72
Netherlands	68	158	113
Portugal	44	60	53
United Kingdom			
England and Wales	53	100	78
Scotland	60	129	96
Northern Ireland	47	71	59
Sweden	84	138	111
Switzerland	101	182	143
Australia			
Edinburgh (unblooded aborigines)	84	167	77
New Zealand			
Edinburgh (Maori)	91	161	126

1950-52

In *Denmark* the same thing happened in 1951 from 966 deaths (22.6 per 100 000 inhabitants) in 1950 the figure fell to 294 (6.8) for the following year. Before 1951

The laboratory participated in mass surveys numbering 104 assisted in establishing a field laboratory in conjunction with a survey conducted in an isolated coal mining village near Keelung undertook a comparative study of the VDRL slide Kline standard slide Kahn standard and Meinicke slide (Kvittingen technique) tests, and co-operated with the International Trepon-

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Below are given some examples of the consequences of the adoption of new rules

In *England and Wales* on the other hand, the break occurred in 1940. In that year new rules for the statistical classification of causes of death were applied—rules very similar to the international criteria which were to be adopted after the sixth revision of the International List. In fact, the number of deaths attributed to diabetes mellitus showed a marked decrease between 1939 and 1940—7627 (18.5 per 100 000 inhabitants) in 1939 as against 5346 (13.4) in 1940.

Many more examples could be cited. But those that have been given suffice to show

that very different reservations must be made with regard to the figures published in the *Report* and those given here in Tables II and III—particularly as to their comparability. To quote the remarks which accompany them in the *Report*—“it cannot yet be said that all the conditions necessary for their full comparability have been fulfilled. With a disease like diabetes mellitus it may never be possible to achieve absolute comparability of national mortality figures since there is still too great a margin of uncertainty as to the *underlying role of diabetes in causing death*”

**TABLE III INDEX OF INCREASE FROM THE AGE OF 40-49 YEARS
OF MORTALITY ATTRIBUTED TO DIABETES MELLITUS IN CERTAIN COUNTRIES 1951-53
(40-49 YEARS = 100)**

Country	Males					Females				
	Age group (years)									
	40-49	50-59	60-69	70-79	80+	40-49	50-59	60-69	70-79	80+
Union of South Africa European population	100	265	759	2 292		100	394	1 562	3 217	
Canada	100	337	871	1 888	2 841	100	403	1 703	3 087	3 487
United States of America	100	289	803	1 681	2 363	100	414	1 329	2 377	2 764
Ceylon	100	337	687	1 157	1 667	100	328	572	830	712
Israel	100	850	1 900	5 808		100	500	2 100	4 691	
Japan	100	308	600	808	1 06	100	212	537	648	419
Germany Federal Republic	100	331	1 246	2 512	2 735	100	475	1 988	4 396	3 912
Austria	100	217	650	1 357	857	100	521	2 079	4 026	3 764
Denmark	100	218	879	1 758	2 379	100	296	1 113	2 326	1 827
Spain *	100	267	733	1 600	1 800	100	367	1 100	2 333	2 200
Finland	100	438	1 175	2 125	969	100	344	1 289	4 017	2 833
France	100	210	792	1 622	1 783	100	452	1 519	3 015	2 637
Ireland	100	167	316	730	1 254	100	333	700	1 464	1 272
Italy	100	400	308	3 308		100	515	2 012	3 647	
Norway	100	176	497	1 206	2 171	100	274	952	2 604	3 687
Netherlands	100	278	1 333	4 372	8 222	100	571	3 053	10 324	18 071
Portugal	100	300	717	1 470	1 227	100	288	828	1 484	1 372
United Kingdom England and Wales	100	225	790	2 270	3 270	100	345	1 465	3 275	3 845
Scotland	100	236	661	1 664	2 962	100	441	1 494	2 872	2 306
Northern Ireland	100	350	913	2 619	1 875	100	200	735	1 429	2 206
Sweden	100	255	726	2 177	2 803	100	414	1 845	4 182	5 418
Switzerland	100	100	1 846	2 912	4 073	100	603	2 207	4 470	4 990
Australia Excluding full blooded aboriginals	100	412	1 408	3 438	4 877	100	574	1 847	4 485	5 402
New Zealand Excluding Maoris	100	364	1 428	3 152	5 600	100	485	1 908	5 754	6 892

1950-52

1952-53

approximate figures

the deaths of all diabetics (with the exception only of persons also suffering from tuberculosis or cancer or meeting a violent death) were attributed to diabetes mellitus whereas now the diabetes mortality statistics cover only death from diabetic coma and deaths of persons on whose certificate

diabetes appears as the only disease Table I an extract of an analysis made by K. Dreyer & A. Hey² illustrates more clearly than any commentary the interruption in the continuity of the statistical series in 1951

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Research

Principal problems for international consideration and action

Annexes

Reports on the causes of amputation

Review of existing types of prostheses

Lay-out and equipment of a large limb-fitting centre

Method of applying a nylon film to leather work

Illustrations of simplified artificial limbs

Selected bibliography

YELLOW FEVER VACCINATION

IMMUNOLOGY

Immunology of yellow fever—*Kenneth C Smithburn*

DAKAR VACCINE

Preparation of yellow fever vaccine at the Institut Pasteur
Dakar—*C Durieux*

Vaccination technique with yellow fever vaccine of the
Institut Pasteur Dakar—*C Durieux*

Post vaccination immunity with yellow fever vaccine of the
Institut Pasteur Dakar—*C Durieux & R Koerber*

17D VACCINE

Production of 17D yellow fever vaccine—*H A Penna*
Administration of 17D yellow fever vaccine with special
reference to Brazil—*H A Penna*

Vaccination by scarification with 17D chick embryo vaccine
—*G B A Dick*

Time of appearance and duration of immunity conferred
by 17D vaccine—*G Courtois*

MASS VACCINATION

Mass yellow fever vaccination in French Africa south of
the Sahara—*C Durieux*

Mass vaccination against yellow fever in Brazil 1937 1934—
Caio de Souza Mello

POST-VACCINATION REACTIONS

Reactions following vaccination against yellow fever—
George Stuart

INTERNATIONAL REGULATION

International regulation of yellow fever vaccination—
P H Bonnet

Select bibliography

Index



CHRONICLE of THE WORLD HEALTH ORGANIZATION

CONTENTS

	Page
Malaria control in Africa Second African Malaria Conference	69
Malaria conference Belgrade 12-14 December 1955	73
Seventeenth session of the Executive Board	78
Mortality from diphtheria	81
Notes and News	
Symposium on venereal diseases and treponematoses	84
Seminar on public health laboratory aspects of virus and rickettsial diseases	84
Yellow fever study tour	84
Phnompenh malaria conference	85
Seminar on environmental sanitation in Africa	85
BCG vaccination in India	86
Tuberculosis control in Turkey	86
Role of the bat in the transmission of rabies	87
Review of WHO Publications	87



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MALARIA CONTROL IN AFRICA

Second African Malaria Conference

Considerable progress has been made during the last five years in the fight against malaria in Africa but while results so far achieved are indeed encouraging there is need for an intensification of work both in the laboratory and in the field in order that answers may be found to the many problems which are still outstanding. This was in general terms the opinion expressed by the 55 experts who participated in the Second African Malaria Conference held in Lagos, Nigeria from 28 November to 6 December 1955 under the auspices of the WHO Regional Office for Africa.

It was just five years since the first conference on malaria in Africa known as the Malaria Conference in Equatorial Africa had been held in Kampala, Uganda. The earlier conference recommended to governments responsible for the administration of African territories that "whatever the original degree of endemicity malaria should be controlled by modern methods as soon as feasible and without awaiting the outcome of further experiments".¹ The second conference was called upon to review progress and to lay down the lines of future policy.

In working towards its central theme namely future antimalaria policy in Africa the conference participants discussed the various aspects of such basic subjects as the epidemiology of human malaria in Africa, malaria parasites and their vectors, the present status of and special problems arising in the control of malaria in Africa, the chemotherapy of malaria, research on malaria and its co-ordination in Africa, and the training of malaria workers of all categories.

The report of the conference which was approved by the participants forms the basis of what follows.

Epidemiology

Questions regarding the effects of malaria in Africa in pregnancy, in childhood and in the adult have long been the subject of much conjecture and while reports of recent investigations throw light on some of these questions much more information is needed and the intensification of studies in different parts of Africa is urgently required. Particularly needed is information on the exact effects of malaria on the economic and social life of the African Region which are still virtually unknown. There is however no doubt that even in holoendemic areas malaria has adverse effects on all age groups which constitute a barrier to the socio-economic development of African territories so gaps in our present knowledge should not prevent or slow down the extension of malaria control.

Further experience has shown that the classification of malaria endemicity proposed by the 1950 conference requires some elaboration if it is to fit African conditions. This is particularly so with regard to the interpretation of the spleen rate in children in the age group 2 to 10 years for the value of this overall index varies with the age composition of the group.

A new concept of considerable interest is that of *stability* in African malaria. This is a state in which the immunity mechanism and perhaps other factors level out the effect on the human population of the enormous variations in transmission which are observed.

SCHEDULE OF MEETINGS

12-17 March	Regional Advisory Group on Water Standards Regional Office for Europe Geneva
19-24 March	Committee on International Quarantine third session Geneva
16-25 April	Seminar on the Public Health Laboratory Aspects of Virus and Rickettsial Diseases Madrid
22-28 April	PASB/WHO Seminar on the Teaching of Preventive Medicine, Mexico
26 April-3 May	Expert Committee on the International Pharmacopoeia fourteenth session, Geneva

The mention of manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature which are not mentioned. Proprietary names of such products are distinguished by initial capital letters.



- 1 Typical village houses in Liberia where a large scale pilot project is under way
- 2 Spraying of residual insecticides inside a village house in Senegal. Notice the rough mud wall and the palm-leaf roof
- 3 Estimations of anopheline density. Here the entomological staff of the Western Sokoto Pilot Project collects mosquitoes from a sheet removed from the floor of a hut sprayed with a special quick-acting knock-down insecticide

Working on typical potential breeding places of *Anopheles gambiae*, the important vector in Africa

Vectors

The most important vector and one which is found throughout the region, is *Anopheles gambiae*. This anopheline shows the most amazing variations of behaviour in different parts of Africa with regard to its resting and feeding and even its breeding habits. These variations need clarification, and investigations of the problem by means of all modern methods must be multiplied and intensified. The assistance of WHO is required in making material and facilities available for the laboratory study of anopheline feeding habits.

Control problems

In Africa some of the obstacles to control are inherent in the nature of the continent its development economic conditions, and the state of administration and communications. Others lie in the extremely high endemicity of malaria commonly encountered and the length of the transmission season which if not peculiar to Africa are rarely matched elsewhere. In addition there are a number of technical problems which are shared with most other countries practising control, but made more important in Africa by the greater efficiency needed to control the high endemicity of malaria encountered there. These problems include the neutralization of the effect of insecticides by interaction with the materials of wall surfaces or through the influence of smoke, the uncertainty regarding the degree of efficiency and the period of persistence of different insecticides and their variations with dosages either on standard wall surfaces or on those encountered locally and the uncertainty about the extent to which the main vectors rest and bite outdoors and the relationship of such outdoor habits to the efficacy of insecticides in their destruction.

In one area of Northern Nigeria where three half yearly applications of dieldrin have been made, two at 25 mg per square foot and one at 50 mg per square foot, *A. gambiae* has

recently shown a physiological resistance to dieldrin and is present in appreciable numbers in treated areas. However there has been no reason to suspect such resistance to insecticides elsewhere in Africa despite the extensive use of DDT and BHC for long periods. In one case it has been shown by laboratory test that no reduction of susceptibility has occurred in *A. gambiae* after seven years' wide use of DDT. There are also a few schemes in which dieldrin has been used for periods of two or three years where satisfactory control has been gained and where there has been no suspicion of any development of resistance to this insecticide.

While the physical, economic, and developmental difficulties in Africa combined with the common high endemicity and prolonged transmission season, justify the temporary exclusion of Africa south of the Sahara from the general proposals on the eradication of malaria made by the Eighth World Health Assembly, there is ample reason to believe that control can be rapidly extended to great areas of territory aiming at and in some cases, soon reaching national (country wide) protection. In the subtropical and other areas where endemicity is less than in the equatorial belt such schemes are possible on the basis of existing knowledge but could be refined and made more economical if they were associated with research. In the equatorial areas of extreme endemicity, schemes must be closely accompanied by entomological and epidemiological studies, together with local evaluations of the efficacy of insecticides and of the susceptibility of the insect to them. There is no reason why such schemes should await the results of special researches. These can and should be carried out in parallel with executive work.

The occurrence of an example of resistance, mentioned above is a grave warning but should be taken in association with the evidence of the wide prolonged and successful use of insecticides in other areas in Africa.

apparently without any such occurrence. Following this warning however, schemes should be planned so as to obtain a complete local interruption of transmission as soon as possible and, to this end, the insecticides used in holoendemic areas should be tested in experimental huts and the dosage and cycle of application should be regulated accordingly to ensure a continuous high mortality of the vector species.

Chemotherapeutics

There is good reason to believe that the effort to break the cycle of transmission in the least possible time would be considerably facilitated by the combination of short periods of insecticidal attack with simultaneous short mass treatment of the population. Such a combined attack might well effect a saving in both time and money in achieving the cessation of malaria transmission. A number of pilot projects are therefore envisaged which should cover areas of adequate size and population where in addition to the spraying of residual insecticides, mass treatment would also be used so that the effects of single and multiple dose treatments, given to the whole population and to the child population alone could be studied and compared.

Research

There is undoubtedly urgent need for an expansion of applied research, both in association with executive schemes and independent of them in Africa and elsewhere. Most immediate attention is needed in problems of resistance, the mechanisms by which it is most likely to be stimulated, and the possibilities of its continuation or disappearance following the discontinuation of insecticidal attack. It is essential that WHO should continue and increase its efforts to ensure integration of executive and applied research work not only in Africa but throughout the world.

Training

To meet the requirements of the expanding malaria control programmes in Africa, facilities for the training of professional and auxiliary personnel will need to be increased. WHO has already played a considerable part in providing such facilities. Its assistance will be required even more in the future in the granting of fellowships, the arrangement of special courses in malariology, the provision of grants for individual or group study in specific aspects of malaria research, the exchange of personnel at all levels between projects in different countries, the organization of seminars for refresher courses and for the exchange of knowledge, and the sending of consultant malariologists from other territories to visit control projects.

Future policy

Of the 166 million people reputed to be living in malarious conditions in Africa south of the Sahara, some 14 million are said to be protected against malaria by one means or another, 9 million being protected by schemes using residual insecticides. It will be seen that 102 million still remain unprotected.

Extension of control measures to rural areas is by no means uniform. There are several territories with large populations in malarious areas where such extension is negligible. Other schemes approach a national scale. While there are numerous schemes in which malaria has been reduced to a negligible level by residual insecticides, including areas in the holoendemic equatorial belt, there are no countries on the African mainland where elimination has been finally achieved. In Swaziland, Southern Rhodesia and Madagascar, however, interruption of transmission has either already taken place or is envisaged in the immediate future. In some other countries, the degree of control has been incomplete, with a reduction of malaria, though not to a negligible level.

adopted have been designed to meet the requirements of agriculture rather than those of malaria control but they have nevertheless helped to achieve good results by reducing the source of infection particularly in Bulgaria.

Extension of the rice fields which presented a danger before the introduction of insecticides can today be authorized but care must naturally be taken when new rice fields are created to avoid increasing the potential sources of infection of a region. This principle applies equally to large scale hydraulic works and to irrigation systems.

Chemotherapy is practised in all the countries concerned with the various drugs available. schizontogametocytocidal treatment is the most usual. The dosage is practically the same everywhere but treatment schedules differ from country to country. In Albania and Bulgaria former patients are given "anti relapse" treatment in the spring. In Bulgaria this treatment is followed by suppressive therapy up to the end of the malaria season. In Romania all new cases and all malaria patients registered during the preceding year (new cases or relapses) undergo schizontocidal treatment from April to October followed throughout the whole of the malaria season by suppressive treatment.

In Albania, Romania, Turkey and Yugoslavia chemoprophylaxis has been applied to certain population groups particularly exposed to the risk of infection because of their occupation and to organized communities in malarious zones (employees in big workyards, members of the armed forces, schoolchildren etc). A weekly dose of mepacrine (Acriche) proguanil (Paludrine) or chloroquine is distributed. In some countries chemotherapy has also been applied to pregnant women and nursing mothers.

In each country malaria control is the responsibility of a national service attached to the department of public health though often decentralized in so far as field operations are concerned. Co-ordination com-

mittees, advisory committees or expert committees (working independently as in Yugoslavia and Greece or in collaboration with parasitology and malariology institutes as in Romania and Bulgaria) ensure the uniformity of programmes, epidemiological methods and operations or as in Turkey and Greece confine themselves to epidemiological research and the training of personnel.

The conference participants expressed the fear that as soon as malaria has been eliminated health administrations may demobilize their malaria-control services. They emphasized that such services should not be dissolved as the tasks to be fulfilled decrease but should be called upon to undertake new health activities.

Resistance to insecticides

Among the countries represented only Greece has reported cases of anopheline resistance to insecticides. In September 1951 *A. sacharovi* was found to be resistant to DDT. In 1952, the same species had developed resistance to chlordane. At the present time resistance seems to be developing in other species (*A. maculipennis* and *A. superpictus*) but this cannot be confirmed until a study now in progress has been completed.

Epidemiological surveillance

Forms of epidemiological surveillance vary from country to country. In Greece an active watch is kept over villages known to be malarious: they are visited by inspectors every 10, 20 or 30 days according to the gravity of the threat to the village. Inspectors are required to detect suspected cases of malaria, to take blood samples for haematological examination and to administer treatment which is continued if the result of the analysis is positive. These inspectors are also responsible for periodic determination of the anopheline density in their zones.

as was to be expected, the results were spectacular

The conference participants furnished data on morbidity before the use of residual DDT and during the past few years. In Albania up to 1933, and in Bulgaria up to 1930 there were about half a million cases of malaria annually whereas in the first ten months of 1955 only 1221 haematologically confirmed cases were observed in Albania and only 662 in Bulgaria. In Greece where in some years the notified cases formerly numbered 1 200 000 only 408 haematologically confirmed cases were observed in 1952. In Romania the 1948 figure for cases of malaria was 338 198, but in the first ten months of 1955 only 325 cases were notified (215 haematologically confirmed). In Turkey, the percentage of hospitalizations due to malaria which was 8.6 in 1940 dropped in 1954 to 0.6. In Yugoslavia there were approximately a million cases of malaria in 1935 but the figure had fallen to 796 in 1953. In other words, in these six countries of south east Europe, malaria, which before the first DDT spraying operations claimed 4 to 5 million victims per year, now attacks only a few thousand and would appear to be responsible for very few deaths.

All the delegations stated that their governments wished to take steps for the final eradication of malaria before the anopheles could develop any possible resistance to insecticides such as had already been noted in Greece and elsewhere.

Control methods

The residual insecticides used by the various countries have been as follows. DDT in a dosage of 2 g per m² in kerosene solution or in emulsion, BHC in a dosage of 0.25-0.30 g of gamma isomer per m² more recently, in Greece chlordane in a dosage of 1.3 g per m² or dieldrin in a dosage of 0.5 g per m². These products have been applied

once, twice, or three times a year. Weaker doses of DDT (1 g per m²) have been used in Yugoslavia. Some countries, such as Romania and Bulgaria, began by treating the highly endemic zones before dealing with the outlying low endemicity regions while other countries attacked from the outset all the inhabited areas in a given zone.

In addition to the mass spraying method, Romania and Bulgaria experimented—first of all on a small scale and then extending the experiment to whole regions—with a system of barrier spraying on the boundaries of the large populated centres or in the outlying zones with low endemicity sometimes suspending spraying in zones where no cases had been notified for two or three years.

In the zones of Romania and Bulgaria where malaria is only sporadic and where mass spraying operations have been suspended, focus sprayings ("selective" method) are also effected. This method consists of applying insecticide to a house where there is a patient and to four or five neighbouring houses.

In all the countries represented at the conference antilarval measures have been adopted in addition to spraying with chlorinated residual insecticides. The same products are used for larval control and aircraft are sometimes employed for antilarval operations particularly in Greece. The larval control method is generally reserved for the treatment of large expanses of water, as in marshes or rice fields. It has not been applied on a large scale except in Greece. In the possible event of anopheles developing resistance account should be taken of the fact that chlorinated insecticides have been fairly widely used in agriculture by several of the countries concerned, particularly during the last few years and that anopheline larvae have probably been in contact with them.

Sanitation of watercourses and swamps has also been undertaken in the countries represented at the conference. The measures

The Bulgarian delegation on the basis of its experience proposed that in the protective zones all cases of malaria should in so far as possible be hospitalized and undergo compulsory treatment consisting of a period of therapy followed by clinical prophylactic ("suppressive") treatment or anti relapse treatment. All suspected cases should be treated as well and should be haematologically controlled three times during the first year and once in the spring in the following year. While they should not be compulsorily notified suspected cases should nevertheless be entered in a special register. The "focus" and the "para focus" i.e. the patient's home and the neighbouring houses would have to be sprayed with insecticides.

The conference participants expressed the wish that research on the susceptibility of anophelines to insecticides should be undertaken in each country employing uniform and comparable methods. Bilateral agreements should provide for the immediate notification of any development of resistance to insecticides on the part of the insect vectors.

As an example of a bilateral agreement attention was drawn to a protocol signed on 20 and 21 July 1955 by the representatives of the Government of Greece and the Government of Turkey. This protocol provides for a regular exchange of information on malaria control in both countries and particularly in the Evros River frontier zone. It also provides for reciprocal visits to the sites of the technical operations and for monthly meetings of a permanent Graeco Turkish committee on malaria control in the Evros area.

Further in view of the fact that air spraying of larval breeding places is a widely applied practice in Greece the agreement provides that Greece shall be responsible for larval control in certain breeding areas (marshes and rice fields) in Turkish territory

the evaluation of the malaria control operations to be made by the Turkish health authorities.

Greek and Turkish experts have agreed that in a zone extending 10 km on each side of the frontier the malaria-control measures applied in the rest of both countries will be very strictly applied including epidemiological inspection of all villages in the "protection zone" to be undertaken every 10-20 or 30 days according to the presence or absence of malaria or the extent to which the village is threatened. Personnel responsible for these inspections must make an active search for suspected cases of malaria, treat them immediately with schizontogameticocides and have the blood of the suspected persons subjected to laboratory examination.

The information referred to in the protocol must include data on the number and location of confirmed cases, anophelines density ascertained by the same method, malaria index and of course any important details with regard to the malaria-control operations.

* * *

The conference participants expressed their satisfaction with the results achieved at the Belgrade meeting and suggested that other conferences be convened periodically to discuss the following points:

- (a) results of the implementation of measures proposed at the Belgrade conference
- (b) residual transmission foci and methods to be adopted for their extinction
- (c) data on the sensitivity of vectors to insecticides

During such meetings there would be a general exchange of information on the development of malaria-control programmes in progress. The hope was expressed that WHO would collaborate in the organization of these meetings.

In other countries cases of malaria are usually detected and registered either at dispensaries or by health personnel in their visits to homes

In either case, epidemiological investigations are also carried out. In Romania, for example, magocidal operations in a village must not be suspended unless at least 80% of the population of all age groups have been examined for splenomegaly and blood parasites. Any person found to be carrying parasites is registered on a card and the case subjected to epidemiological investigation, all the inhabitants of the same house and of neighbouring houses undergo haematological control.

In Bulgaria a complete epidemiological survey is made of all villages in which there are more than three cases of malaria. The survey consists of interrogation of the whole population and analysis of the blood of all children under 14 years of age and of all the inhabitants of the houses adjacent to those of persons suffering from malaria.

Malaria eradication

It is evident that no country can safely interrupt operations with insecticides if there is at its frontiers a zone where malaria is not controlled or where gametocyte carriers and infected anophes are present. In response to the wishes of all delegations present the conference participants thought it desirable that measures be studied and adopted by which accurate information on the malaria situation in the common frontier zones might be regularly and rapidly obtained. Such information would make it possible for the countries concerned to take adequate steps.

During the period of the conference devoted to the final objective of eradicating malaria, the participants called attention to the necessity not only for the periodic exchange of epidemiological information but

also for the application of measures to ensure effective control in the frontier zones. This could be implemented by the adoption of bilateral agreements between the countries concerned.

It was noted with satisfaction that several participating countries had already established close co-operation and were exchanging information on malaria in frontier regions. Bilateral agreements already exist between the Kingdom of Greece and the Turkish Republic, and between the People's Republic of Bulgaria and the People's Republic of Romania. A wider agreement relating to communicable diseases in general (and therefore covering malaria) has been signed between the People's Republic of Bulgaria and the Federal People's Republic of Yugoslavia. A similar agreement is being prepared between the Kingdom of Greece and the Federal People's Republic of Yugoslavia.

Conference participants expressed the opinion that bilateral agreements were very effective instruments for the exchange of information. While it was for the respective governments to define the level at which information should be exchanged, the conference participants specifically proposed that this exchange be effected directly between the national health administrations.

The conference considered that a "protective zone" to a depth of about 20 km should be established on each side of the frontiers within which similar steps must be taken, including the compulsory notification of all cases of malaria, epidemiological investigation of each case and the haematological examination of blood samples from patients and persons living in the same house as the patient and persons living in neighbouring houses. Monthly reports indicating new cases detected in the zone during the month should be exchanged between countries signatory to bilateral agreements and the appearance of micro foci should be notified immediately by telegram.

Atomic energy and protection against radiation

The Board reviewed the new developments in international activities relative to the peaceful uses of atomic energy and the consequences of the use of this form of energy on the public health

The General Assembly of the United Nations decided to prolong the activity of the Advisory Committee which was charged with the organization of the Conference on the Peaceful Uses of Atomic Energy held in Geneva in August 1955 and to establish a sub-committee on atomic energy within the Administrative Committee on Co-ordination in which the specialized agencies interested in atomic energy problems will be represented. In addition it set up a scientific committee composed of representatives of 15 countries (including Japan) to deal not only with the problems involved in the peaceful uses of atomic energy but also with the effects of atomic radiations on the human organism. This committee will receive and distribute information on observed levels of radiation and on the effects of radiation on man and his environment. Co-ordination will be assured between the committee and the international agencies concerned with these questions.

WHO proposes to extend in 1956 the relevant activities undertaken in 1955 these consisting largely of collecting information on the nature and scope of problems associated with the use of atomic energy on the sources of advice available to the Organization and on the laws and regulations in force in various countries with regard to protection against radiation. The programme will include in particular

1 The training of personnel. An increasing demand throughout the world for personnel specialized in the application of atomic energy will require training of workers of different types (a) specialists responsible for

protection against radiation hazards in laboratories and in industry—a group which will become more and more essential (especially in countries in which research has been in progress for several years) as the applications of atomic energy spread beyond the specialized industries and laboratories and enter into everyday use in already existing factories (b) public health administrators familiar with the problems of radiations who will be called upon to give advice on the siting of reactors and the disposal of radioactive wastes (c) medical personnel and radio-physicists trained in the therapeutic and diagnostic uses of radio-isotopes—a group which will find an increasingly wide field of activity particularly in the less developed countries where these methods are yet to be introduced into medical practice

WHO has already awarded several fellowships for the training of these different types of personnel. Under the auspices of the Regional Office for Europe a first course for "health physicists" was given in Stockholm in 1955 other courses of similar nature are being planned.

2 In 1956 WHO plans to take advantage of the meeting of the International Congress on Human Genetics which will take place in Copenhagen to convene a study group to investigate the problems connected with the effects of radiation on human heredity and to attempt to define a programme of work at the international level.

3 The eventual standardization of radiation units and of the methods of describing radiation doses and the possibility of extending the principles of biological standardization to radioactive substances will also be considered by a group of consultants convened by WHO in consultation with the International Commission on Radiological Protection and the International Commission on Radiological Units.

SEVENTEENTH SESSION OF THE EXECUTIVE BOARD

The WHO Executive Board held its seventeenth session, in Geneva, from 12 January to 2 February 1956, under the chairmanship of Dr S Al Wahbi, Director of Karkh Hospital, Baghdad, Iraq. Dr O Vargas Mendez (Costa Rica) and Dr S Anwar (Indonesia) were elected Vice Chairmen, Dr A da Silva Travassos (Portugal) and Dr J J du Pre le Roux (Union of South Africa) were the Rapporteurs. A meeting of the Standing Committee on Administration and Finance preceded this session of the Board.

Some sixty items were included on the agenda. The Board was particularly concerned with the programme and budget for 1957 and the question of resumption of active membership in the Organization by the USSR. It considered, among other matters, the situation created by the resistance of insects to insecticides, WHO's programme relative to atomic energy and its implications for public health, increasing efforts to control leprosy and the establishment in different parts of the world of registry centres for pathological tissues.

Programme and budget for 1957

The Board approved the programme of activities for 1957 proposed by the Director General. After several days of discussion it decided to recommend to the Ninth World Health Assembly an effective working budget of \$11 000 000 for 1957, this sum representing an increase of about \$800 000 over the budget for 1956 and \$440 000 less than had been proposed by the Director General. United Nations Technical Assistance funds are expected to provide \$5 300 000 if governments request the health projects which have been negotiated.

The Board also recommended that, in the event that the number of Member States

actively participating in the work of WHO should increase, the effective working budget should be increased by a maximum amount of \$1 525 000.

Participation of the USSR in the work of WHO

In February 1949, the USSR which had signed the WHO Constitution in 1946 and had become a Member of the Organization in 1948, informed WHO that it no longer considered itself a member. Similar action was taken by Albania, Bulgaria, the Byelorussian SSR, Czechoslovakia, Hungary, Poland, Romania and the Ukrainian SSR. Since the WHO Constitution makes no provision for withdrawal from membership these Members were subsequently considered "inactive".

Reiterating a statement made by the representative of his country before the United Nations Economic and Social Council in June 1955, Dr N Khmelev, Deputy Minister of Health of the Soviet Union, announced to the WHO Executive Board that his country was prepared to participate again in the work of the Organization in order to collaborate more fully in international health activities. Several of its members expressed the Board's pleasure at the USSR's decision to take an active part in the work of WHO. They said that the support of the Soviet Union would represent a valuable asset from which all Member States would benefit, and that resumption of active participation by the USSR and the other eight countries would make the Organization almost universal in its membership.

The financial aspects of participation by the USSR and other Members in the same position—particularly the question of arrears of contributions—will be studied by the Ninth World Health Assembly.

in force in different countries provided expert advice and consultant services to nine countries and participated in control campaigns in seven others

It is estimated that there are 10 to 12 million persons suffering from leprosy in the world. The number of patients seeking care has increased in recent years thanks to the encouraging results of more humane and more effective treatment. For example in French Equatorial Africa plans are being made to treat with WHO aid 125 000 patients in 1956 as compared with 80 000 in 1955. In Nigeria the number is expected to be 195 000 as against 80 000 in 1954.

The Board emphasized that much remains to be done and it recommended to the Health Assembly that the regional directors be encouraged to step up leprosy-control efforts and to undertake new programmes.

Establishment of registry centres for pathological tissues

A proposal was made to the Executive Board to extend its network of facilities for biological standardization and for the exchange of information on various diseases to the study of pathological tissues, cancer tissues in particular. Although knowledge of the distribution of cancer has been advanced there remain certain phenomena which have been observed in different parts of the world and the study of which might shed some light

on the etiology of the disease. Better understanding of the application of definitions is also necessary. Unknowns of the same type exist with regard to other diseases.

WHO could designate a number of reference centres which would assist national institutions and services in the diagnosis and definition of pathological tissues. It is possible that certain laboratories undertaking this work would be connected with medical schools and the programme would thus be of benefit to medical education. The application of this method of study to cancer is already being developed.

The Board accepted this proposal and asked the Director General to study what further action might be taken.

Malaria eradication special account

The first two voluntary contributions to the special account for combating malaria which was created by the Eighth World Health Assembly to promote malaria eradication campaigns were acknowledged by the Board: a contribution of approximately \$10 000 from Brunei and material valued at some \$4000 given by China. A committee made up of five members of the Executive Board has been selected to accept certain voluntary contributions as may be offered and to give advice on the use of the fund and on means of obtaining voluntary gifts from official and private sources.

MORTALITY FROM DIPHTHERIA

Diphtheria is on the decline throughout the world and provided that the means available for its control are properly utilized there is no doubt that it can rapidly cease to be a public health problem. Evidence of this is provided in a series of statistical

tables published by WHO which show how mortality from diphtheria has been steadily decreasing since the beginning of the twentieth century in the 36 countries or territories covered by the study.¹

¹ *Epidemiol. et Statist. R. P.* 1955, 8, 524-541.

Resistance of insects to insecticides

The situation created by the resistance of insects to insecticides in general, and by anopheline resistance in particular, which for several years has been actively studied by WHO, has been steadily deteriorating according to a report presented for the Board's consideration. In Greece, Panama, Saudi Arabia and the USA, various species of anophelines have developed an appreciable resistance to the chlorinated hydrocarbons. To destroy a certain strain of *Aedes aegypti* in Trinidad it is now necessary to use 2.0 p.p.m. of DDT, as compared with 0.004 p.p.m. for a normal susceptible laboratory colony. A survey made by WHO during the past three years in 70 countries on the resistance of lice to insecticides has revealed that in five countries resistance to DDT has been established. House flies have become almost universally resistant to the halogenated insecticides and according to a recent report from Denmark strains resistant to the organic phosphorus insecticides have now been isolated. The situation is the same with regard to certain species of fleas. Thus it is not just the control of malaria which is at stake but also the control of other epidemic diseases, such as yellow fever, typhus, and plague.

According to technical papers presented to the Board it would be scarcely realistic to hope that the development of new insecticides will solve this problem in the near future. The few products recently proposed are more dangerous to man than DDT or BHC.

There is a need for many more research programmes. Insufficient funds drawn from budgets for insect control have been devoted up to the present time, to research on the biological action of insecticides and on the nature of insect resistance to them. This neglect may in the long run jeopardize the control of certain diseases. Few laboratories are adequately equipped to undertake work on all aspects of the problem of insect resis-

tance. Collaboration among laboratories can doubtless be effected however. Rapid dissemination of information between field stations and laboratories as well as among the laboratories themselves, would be an essential condition for successful study of this problem.

The Executive Board approved the relevant sections of the programme for 1956 and 1957 including surveys of the research being performed in different parts of the world, meetings of the Expert Committee on Insecticides composed of biologists, malariologists, epidemiologists, and chemists, a meeting of the directors of laboratories collaborating in pertinent research programmes, and the drawing up of recommendations for the guidance of Member governments on the future use of insecticides.

Large-scale leprosy control campaigns

The control of leprosy as a public health measure—both as regards new control methods and treatment—has reached a stage where considerable progress can now be made, declared one member of the Executive Board. Since 1950 WHO has been concerned with the problem of leprosy. A committee of experts convened in 1952 drew attention to the efficacy of the sulfones in the treatment of this disease and to the need for a new approach in its control.

The more effective modern treatment giving better chances of recovery calls for a reconsideration of existing practices regarding compulsory isolation. While the rule of isolation of infectious cases may still be retained the method of applying the rule may be modified so that the patient may be attracted to come forward earlier for treatment.

The change would bring the practice regarding leprosy more into line with that used in tuberculosis, a much more infectious and more often fatal disease and contribute to the disappearance of the unreasonable horror attached to leprosy.¹

In recent years WHO has published information on the legislation on leprosy which is

The development of antidiphtheria serum at the end of the nineteenth century made it possible to save an increasing number of lives of those stricken with the disease but it was not until after the First World War that the introduction of antidiphtheria vaccine and improvements in immunization methods led to a considerable drop in diphtheria mortality. The data which follow (see also Fig. 1) illustrate the striking decline in a number of countries.

Country	Year	Deaths from diph. aetia	Mortality as per 100 000 population
Australia	1901	433	11.4
	1953	51	0.6
Austria	1921	470	7.2
	1954	29	0.4
Belgium	1901	1 750	26.0
	1953	27	0.3
Canada	1924	1 281	14.0
	1953	15	0.1
Denmark	1921	510	15.5
	1951	1	0.1
England and Wales	1901	9 761	29.8
	1954	9	0.1
Finland	1927	186	5.5
	1954	4	0.1
France	1906	3 314	8.4
	1954	67	0.2
Germany	1901	27 741	39.1
	1953	277	0.6
Italy	1901	5 444	16.7
	1953	857	1.8
Japan	1910	5 435	11.0
	1953	773	1.0
Luxembourg	1923	4	1.5
	1952	2	0.7
Netherlands	1901	931	17.8
	1953	73	0.7
New Zealand	1901	72	9.3
	1953	3	0.2
Norway	1908	555	23.7
	1952	6	0.2
Sweden	1901	2 617	50.8
	1953	1	0.1
Switzerland	1901	1 052	31.5
	1953	10	0.2
USA	1901	6 782	33.5
	1953	156	0.1

The downward trend continued until the Second World War when a recrudescence of

diphtheria was experienced in many of the countries (particularly in Europe) directly involved in the conflict or bearing the consequences of the hostilities as the following data indicate.

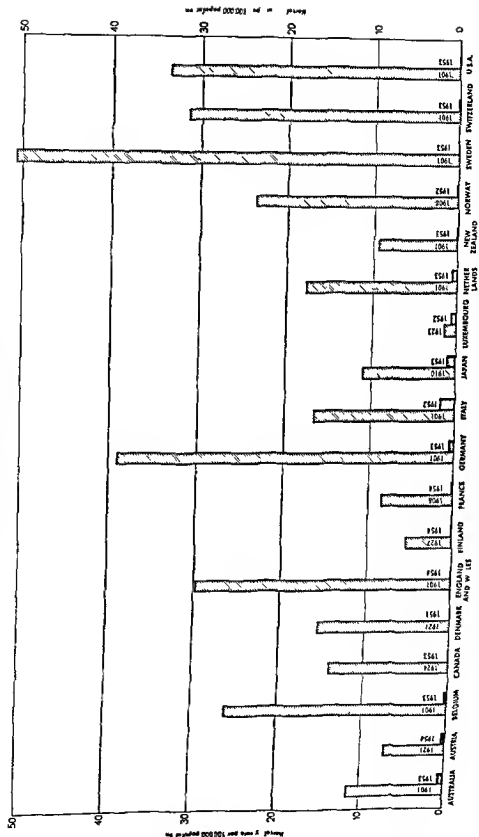
Country	Year	Mortality rate per 100 000 population
Austria	1939	9.6
	1945	29.3
Belgium	1940	4.8
	1943	11.9
Denmark	1941	0.6
	1945	7.2
Finland	1939	5.9
	1944	30.8
France	1940	3.9
	1945	8.7
Germany	1938	9.6
	1946	19.2
Japan	1940	6.6
	1945	11.2
Luxembourg	1940	0.3
	1944	25.2
Netherlands	1939	0.9
	1945	26.1
Norway	1939	0.1
	1943	24.7

The WHO publication also points out the fact that it is at the age of 4 years that diphtheria generally represents the most serious threat to the health of children.

Country	Proportion (/) of deaths from diphtheria in relation to general mortality (all causes) 1951-53	Children under 10 years old	Children 4 years old
Australia	0.6		3.4
Canada	0.1		0.8
Finland	0.2		1.7
France	0.2		1.2
Italy	2		7.5
Netherlands	1.7		9.7
New Zealand	0.1		1.8
Norway	0.1		1.0
United Kingdom	0.1		0.8
USA	0.1		0.9

The statistics published by WHO bear witness to the efficacy of diphtheria immunization and emphasize the importance of its widespread application.

FIG 1 MORTALITY FROM DIPHTHERIA



in recent years at several points in the Americas¹ Particular subjects of observation were the epidemiological and quarantine aspects of yellow fever the manufacture and application of 17 D yellow fever vaccine and the methods employed in efforts to eradicate *Aedes aegypti*

The tour was conducted by Dr J Austin Kerr Special Adviser on Yellow Fever to the Pan American Sanitary Bureau which acts as Regional Office of WHO The participants visited the following countries USA (study of quarantine measures at the international airport in Miami) Cuba (*Aedes aegypti* eradication operations in Havana and neighbouring towns) Honduras and Costa Rica (sites of recent outbreaks of jungle yellow fever) Panama (research at the Gorgas Memorial Laboratory and field work concerning species of jungle mosquitos that carry the disease in tropical forested areas) Colombia (production of vaccine and research at the Carlos Finlay Institute in Bogotá and field trip to the Magdalena River Valley) Trinidad (research at the Trinidad Regional Virus Laboratory in Port-of Spain field work) Brazil (National Yellow Fever Service Regional Office and Virus Laboratory in Belem and the National Yellow Fever Service in Rio de Janeiro)

Those participating in the tour were Dr S Anwar Inspector General of Health of Indonesia Dr J C Azurin Director of Quarantine Department of Health of the Philippines Dr C Courtois Director of the Medical Laboratory Stanleyville Belgian Congo Dr A J Haddow Director of the East African Virus Research Institute Entebbe Uganda Dr A Halawani Director General of the Department of Endemic Diseases of the Egyptian Health Ministry Dr C G Pandit Secretary of the Indian Council of Medical Research Ministry of Health of India Dr A R Qattan Assistant Director General of the Department of Preventive and Social Medicine Ministry of Health of Iraq Dr M A Vauzel Inspector General of the Overseas Pasteur Institutes Paris France and Dr I Fang Director of

the WHO Regional Office for the Western Pacific Manila

Pnompenh Malaria Conference

A conference similar to the one held in Belgrade² took place in Pnompenh from 10 to 12 January 1956 under the auspices of WHO and with the participation of delegates from Cambodia Laos Thailand and Viet Nam. The participants unanimously recommended the creation of an antimalaria co-ordination board

In advising the setting up of this body it was the intention of the four countries to facilitate not only joint development of their malaria-control programmes but also collaboration in efforts to eradicate the disease from this part of Asia Each country will send a representative to periodic meetings of the board WHO has been asked to supply the necessary technical services and secretariat

The conference participants were of the opinion that malaria-control co-ordination should cover in particular the nature of the campaign to be undertaken the delineation of the zones to be treated and the synchronization of operations Emphasis was also laid on the necessity for extending these collective activities over a still wider regional area in order to include outlying territories which are also malaria infested The Anti-malaria Co-ordination Board will therefore welcome any neighbouring state which may express a desire to become a member

Several recommendations for the intensification of malaria-control efforts were adopted at the conference These were especially concerned with the strengthening of malaria-control services exchange of information among such services improvement of statistics standardization of control methods and implementation of vigorous health education programmes

Seminar on Environmental Sanitation in Africa

Environmental sanitation methods and techniques developed in the economically

¹ See Chron. Wld Hlth Org. 1956, 10, 39

² See p 73 of this number of the Chron. Hlth

Notes and News

Symposium on Venereal Diseases and Treponematoses

The World Health Organization and the U S Public Health Service are jointly sponsoring an international symposium on venereal diseases and the treponematoses, to be held in Washington D C USA from 28 May through 1 June 1956

This symposium is intended to provide an opportunity for an international exchange of ideas and information on the latest developments in research diagnosis, treatment, and case finding of the venereal diseases and treponematoses. The agenda will cover topics such as the following: Control of Venereal Diseases and the Treponematoses in Retrospect and Prospect, Reporting and Statistical Problems, Natural History of Syphilis and the Treponematoses, Experimental Syphilis and the Treponematoses, Serology and Immunology of the Treponematoses, Diagnosis Management and Prognosis of the Treponematoses and the Venereal Diseases, Gonorrhea the Minor Venereal Diseases and Non Gonococcal Urethritis, Epidemiology and Control Techniques, Health Education and Public Information, Voluntary Agency Co operation in Control Programmes.

The symposium is open to all physicians, scientists and professional health workers interested in participating. It is expected that before or after the symposium participants will visit research evaluation or operating projects being carried out in the USA.

Seminar on Public Health Laboratory Aspects of Virus and Rickettsial Diseases

In the shifting pattern of communicable disease virus and rickettsial diseases are assuming relatively greater importance. Accordingly, public health departments and their laboratories are being increasingly

called upon to render services in this domain to virologists, practising physicians and research workers.

The WHO Regional Office for Europe is planning a ten day seminar on the public health laboratory aspects of virus and rickettsial diseases to be held in the Escuela Nacional de Sanidad Madrid from 16 to 25 April 1956. The programme includes laboratory demonstrations as well as discussions led by experts and is designed to bring out the public health aspects of the virus and rickettsial diseases from both the technical and the administrative points of view. In recent years new and simplified techniques for the laboratory diagnosis of virus and rickettsial diseases have been developed. A public health laboratory can begin work in this field without the acquisition of extensive and expensive equipment.

The seminar is intended for public health workers especially those from public health laboratories to assist them in either strengthening or developing virus and rickettsial disease sections within public health laboratories. The participants are expected to include 23 from the European Region 11 from the African Region and 3 from the Eastern Mediterranean Region.

The seminar consultants are Dr F Perez Gallardo Escuela Nacional de Sanidad Madrid, Dr P Lepine Institut Pasteur, Paris, Dr F O MacCallum Virus Reference Laboratory Public Health Laboratory Service London and Professor M Michael Sigel University of Miami Miami Fla.

Yellow Fever Study Tour

Upon invitation from WHO leading public health and laboratory authorities from Europe Asia and Africa spent three weeks in February 1956 visiting several countries of the Americas to study at first hand the conditions under which yellow fever occurred.

Role of the Bat in the Transmission of Rabies

Since 1911 it has been known that vampire bats in Central and South America transmit rabies. In the USA even bats normally feeding on insects and fruit have been shown to be infected with rabies since 1953 about 100 infected bats have been reported and three of these had bitten human beings. In Germany where 100 to 200 rabid animals of various kinds are reported monthly it is also suspected that the disease exists in bats. Last year a man in India was bitten by a bat and subsequently died of rabies. The latest report associating

bats with rabies has come from Yugoslavia where the Pasteur Institute of Novi Sad has confirmed by laboratory examination the presence of rabies virus in bats captured locally.

Rabies still claims many victims throughout the world. If it is confirmed that bats—which are found in all latitudes—constitute a significant reservoir of the virus the eradication of rabies will be a difficult problem.

Bat surveys are being encouraged by WHO in a number of countries so that more information on the role of the bat in the transmission of rabies may become available.

Review of WHO Publications

Bulletin of the World Health Organization
1956 Volume 14 Number 1 (pages 1-186)

A wide variety of subjects is dealt with in this number of the *Bulletin*.

The first article by Naguib Ayad is a comprehensive report on a survey of bilharziasis and its vectors in certain countries of north east Africa and of the Red Sea area (British Somaliland, Eritrea, Ethiopia, Somalia, the Sudan and Yemen) and a review of the somewhat scattered and incomplete information on this subject already available in the literature. The author draws attention to the danger of a spread of bilharziasis from highly endemic regions to those where its prevalence is still slight because of irrigation works, construction of roads and consequent intensification of traffic and movements of agricultural workers. He emphasizes the importance of the necessary legislative measures which must be supported by a population well informed about the etiology of the disease.

A search for neutralizing antibodies of poliomyelitis was made among certain Pygmy and Negro peoples in the Belgian Congo. A study by G. Barski & P. Lepine reveals the presence from a very early age of antibodies corresponding to the three types of poliovirus

in 80% to 100% of the Pygmies and Negro villagers from regions with good communications with the outside world. On the other hand in regions less accessible a large proportion of the sera were found to be negative especially in children and even among persons up to the age of 20 years. The authors discuss the epidemiological significance of these observations.

Improved research techniques in poliomyelitis are the subject of two articles. Joseph L. Melnick & Edward M. Opton describe the use of disposable plastic panels in the colorimetric assay of poliomyelitis neutralizing antibody and Catherine Rappaport discusses an automatic method for the preparation of cell suspensions by the trypsinization of monkey kidney tissue.

The stability of biological standards which is the foundation of all biological standardization is considered by N. K. Jerne & W. L. M. Perry who demonstrate by the indirect methods available that the present standards are extremely stable.

The advantages of potassium iodate over iodide in the iodization of salt under difficult climatic conditions are brought out in a note by Guillermo Arroyave, Oscar Pineda & Nevin S. Scrimshaw.

advanced countries are not necessarily of value in under developed regions. Often the people of these regions especially in the rural areas stick to their habits and traditions and are completely unaware of the benefit they might derive from improvement of the sanitary conditions in which they live.

In organizing a seminar on environmental sanitation in Africa WHO invited specialists medical officers, engineers and health educators not only from Africa but also from Europe and the Americas to re examine the problem of environmental sanitation in Africa in the light of the experience gained and to suggest measures sufficiently general in nature to be applied under the varying conditions existing on the continent. This seminar was held, under the auspices of the Government of Western Nigeria in Ibadan from 12 to 17 December 1955. *Médecin Général M. A. Vauzel*, Inspector General of the Overseas Pasteur Institutes (France) acted as Chairman.

Starting from the premise that it is always possible to do something to improve environmental conditions whatever the circumstances and the financial means at hand, the seminar participants expressed the opinion that any relevant policy must include (a) the establishment within the health services of a section on environmental sanitation which would be responsible for evaluating the needs and resources of the different areas formulating plans of work, and directing such work (b) the inclusion of projects in environmental sanitation in public health programmes assigning priorities and determining suitable starting points and (c) the development of a long range plan for improvement of environmental sanitation throughout the country.

The participants emphasized the fact that no progress could be realized without the co operation of the people. It would be useless to insist upon the installation of sanitary facilities which would surely never be utilized. It is essential to obtain popular support from the very beginning. A good method consists of establishing demonstration zones which the people can visit and from which they can draw useful com-

parisons. It is also a good technique to ask them to collaborate actively in the work, any community, regardless of how poor it may be is capable of furnishing some material and the necessary labour.

The task of the health educator is obviously of primary importance in these regions. In this connexion, the conference participants recognized the influential role of the African woman in the life of the community the ultimate success of any effort to improve environmental conditions in Africa will depend upon her collaboration.

BCG Vaccination in India

WHO and UNICEF have assisted in the implementation in many parts of the world of BCG vaccination programmes for the protection of young people against tuberculosis. In India the operations have been on an impressively large scale, and they are still under way. The latest report discloses that since the beginning of the campaign in July 1951, about 63 million young persons have been examined and about 22 million have been vaccinated. At the end of 1955 128 vaccination teams were operating in India.

Tuberculosis Control in Turkey

The Turkish health authorities have, since 1948 been engaged in a mass BCG vaccination programme, for the past three years, this work has been assisted by WHO and UNICEF. About 9 million persons—nearly half of the population of Turkey—have already been tuberculin tested and, of these about 44% have given a negative reaction. Approximately 98% of the negative reactors have been vaccinated.

The BCG vaccine used in the campaign is produced by the Refik Saydam Central Institute of Hygiene in Ankara. In December 1955 about 46 litres of vaccine were produced. In the same month the Institute also prepared 90 litres of tuberculin (PPD) from stock solutions of tuberculin purchased in Copenhagen for the Institute by UNICEF.

POLIOMYELITIS VACCINATION

A preliminary Review

Introduction

Experience with poliomyelitis vaccination in various countries

Safety testing

Selection of strains for inactivated poliomyelitis vaccine

Antigenicity tests

Theoretical complications of vaccination against poliomyelitis

Public health application of inactivated poliomyelitis vaccine under different
epidemiological conditions

Live virus vaccines

Design and techniques of serological surveys

Conclusions

Annexes

Poliomyelitis vaccine antigenicity and potency tests

Selection of strains for inactivated poliomyelitis vaccine

Present status of work on immunization of human beings
with living attenuated poliomyelitis virus

Studies of immunization of man against poliomyelitis
with living attenuated virus

CORRIGENDUM

VOL 10 No 1

**PROPOSED INTERNATIONAL NON-PROPRIETARY NAMES
(Prop INN) LIST 4**

Page 34 reserpine (eighth name) chemical description

delete alkaloid from the roots of Rauwolfia serpentina Benth

insert alkaloid from the roots of various species of Rauwolfia



CHRONICLE OF THE WORLD HEALTH ORGANIZATION

CONTENTS

	Page
Introduction	91
Communicable diseases	91
Malaria	91
Tuberculosis	92
Treponematoses and venereal infections	93
Zoonoses and veterinary public health	94
Virus rickettsial, and other communicable diseases	95
<i>Project list</i>	98
Public health services	102
Nutrition	102
Mental health	102
Maternal and child health	103
Nursing	104
Social and occupational health	105
Health education of the public	106
Health work among the Palestine refugees	107
<i>Project list</i>	107
Environmental sanitation	112
<i>Project list</i>	112
Education and training	114
Fellowships	114
Exchange of scientific information	115
Assistance to educational institutions	115
<i>Project list</i>	115
Other activities and services	116
Peaceful uses of atomic energy	116
Epidemiology and health statistics	117
<i>Project list</i>	118
Therapeutic substances standardization and health laboratory methods	118
<i>Project list</i>	119

YELLOW FEVER VACCINATION

IMMUNOLOGY

Immunology of yellow fever—*Kenneth C Smithburn*

DAKAR VACCINE

Preparation of yellow fever vaccine at the Institut Pasteur, Dakar—*C Durieux*

Vaccination technique with yellow fever vaccine of the Institut Pasteur Dakar—*C Durieux*

Post vaccination immunity with yellow fever vaccine of the Institut Pasteur, Dakar—*C Durieux & R Koerber*

17D VACCINE

Production of 17D yellow fever vaccine—*H A Penna*

Administration of 17D yellow fever vaccine, with special reference to Brazil—*H A Penna*

Vaccination by scarification with 17D chick embryo vaccine—*G W A Dick*

Time of appearance and duration of immunity conferred by 17D vaccine—*G Courtois*

MASS VACCINATION

Mass yellow fever vaccination in French Africa south of the Sahara—*C Durieux*

Mass vaccination against yellow fever in Brazil 1937 1934—*Caio de Souza Mello*

POST-VACCINATION REACTIONS

Reactions following vaccination against yellow fever—*George Stuart*

INTERNATIONAL REGULATION

International regulation of yellow fever vaccination—*P H Bonnet*

Select bibliography

Index

THE WORK OF WHO 1955

A Review of the Annual Report of the Director-General

In 1955 the World Health Organization "achieved substantial results" in its programmes of assistance to governments in controlling communicable diseases strengthening health services and training health personnel of all types. The improvement of environmental sanitation remained a fundamental concern in many countries and the object of WHO aided projects in all parts of the world particularly in the economically under-developed areas. Increased attention was paid to some of the principal problems of the economically advanced countries—problems such as cancer cardiovascular disorders and the public health implications of the aging of the population.

By the end of the year WHO had mapped out a suggested programme of work in a comparatively new field the peaceful uses of atomic energy.

Throughout the year the Organization continued to render technical services on a world wide scale with regard to epidemiology and health statistics drugs and other therapeutic substances and public health laboratory work.

* * *

In the Annual Report of the Director General for 1955* the detailed list of projects assumes much greater importance than in previous reports it has in fact become the core of the record of work accomplished. For this reason condensed project lists form part of each major section in the review which follows.

COMMUNICABLE DISEASES

1955 saw important developments in the control of several of the communicable diseases with which WHO is most concerned developments which are bound to have considerable effect on the work of the Organization in the future.

Malaria

In malaria increasing heed had to be paid to earlier warnings about a need for change in strategy because of the resistance of vector

anophelines to insecticides. Most significant was a resolution of the Eighth World Health Assembly which called for WHO initiative technical advice and encouragement and co-ordination of research in a programme having as its ultimate aim the world wide eradication of malaria.

In addition to continuing aid to malaria control projects in many parts of the world the Organization promoted laboratory study of insecticide resistance undertook "operational research" as part of field projects and co-ordinated investigations begun in previous years on the sorption of insecticides sprayed on mud walls.

* World Health Organization (1956) *The World Health Organization 1955 Annual Report of the Director-General*. The World Health Organization, Geneva. 144 p. Price 10/- (US\$ 2.00) or 5/- (US\$ 1.00). Published in English, French, and Spanish.

far reaching effects and implications of the innovations in this domain

Many of the traditional methods of treatment of pulmonary tuberculosis are being discarded medical and surgical collapse therapy is being replaced by partial or total resection of the lung even the value of bed rest is debated particularly for patients with no clinical symptoms

In countries where enough beds are available for tuberculous patients many cases—even those newly diagnosed—are being treated outside institutions increasing numbers of physicians are convinced that hospitalization is no longer essential for successful treatment In some countries this has led to a transfer of responsibility the management of the tuberculous patient has devolved more and more on general practitioners and they have not always been well prepared to undertake it The systematic education of medical students and practitioners in tuberculosis has thus become very important

Now for the first time effective domiciliary drug treatment of infectious cases mass immunization and possibly chemoprophylaxis with an inexpensive drug such as isoniazid may bring a systematic programme of control within the reach of almost any health administration

For WHO these developments may mean radical changes in programme The Organization is assisting in research projects which should eventually answer some of the questions now being posed In South East Asia for example a five year project is being undertaken to study the effects of domiciliary treatment with antituberculosis drugs and to compare this method with the same treatment given in hospital Some aspects of chemoprophylaxis with isoniazid will also be investigated

During 1955 the Organization concentrated particularly on developing satisfactory techniques for surveys of tuberculosis assisting governments to make such surveys finding the solutions for problems relative to simple practical and inexpensive measures for tuberculosis-control programmes and helping governments to carry out BCG vaccination campaigns It initiated a study of mycobacteria isolated from patients in tropical areas and proceeded with special studies on tuberculin testing and BCG vaccination

Treponematoses and venereal infections

WHO continued to assist governments in carrying out mass treatment campaigns against yaws and syphilis aiming not only at control of these diseases but also at promoting the establishment of rural health services into which the treponematoses control activities might eventually be incorporated By the end of 1955 more than 50 million persons had been examined and 15 million treated in WHO aided mass campaigns against the treponematoses

FIG 2 TREPONEMATOSSES IN THE FIJI ISLANDS



Aspect of a campaign in Fiji undertaken with assistance from WHO and UNICEF

The Organization was also concerned during the year with the co-ordination of research and studies on the reactivity of freeze-dried sera from syphilitics and non-syphilitics with a view to establishing international reference preparations for such

FIG 1 MALARIA CONTROL IN TAIWAN



Unloading supplies of DDT on the beach at Lan Yu (Orchid Island Taiwan)

One of the WHO assisted demonstration and training projects which came to an end in 1955 was that in Burma which had begun in Lashio in 1951 and had later been extended to the Maymyo area where emphasis was on training activities. Its threefold aim typical of most WHO projects was (a) to set up a demonstration and training centre for malaria control (b) to make a preliminary malaria survey and (c) to train staff for the national malaria organization. The Organization provided the services of a malariologist, an entomologist and a sanitarian. The work accomplished in 1955 has been summarized thus:

A preliminary malariometric survey was made in thirty-six villages in the Maymyo area. 690 children

were examined for enlarged spleen and malaria parasites. Several villages in the area were sprayed with DDT water-dispersible powder.

Many trainees of various categories completed their training; they will be employed in the country-wide malaria-control programme which is expected to last five years.

The entomologist visited the Lashio area where the WHO team completed its work in 1954 to find whether DDT spraying for the last four years had caused resistance to DDT to develop in the local vector.

Tuberculosis

Tuberculosis control techniques began to undergo a revolution thanks to the advent of effective antimicrobial therapy. The Annual Report draws attention to the

spread of sylvatic rabies. In co-operation with the chief of the Predatory and Rodent Branch of the United States Fish and Wildlife Service forty-one poison stations were chosen in four states of northern Mexico and about 700 kilograms of poisoned donkey meat were set out. These demonstrations cover an area of approximately 1 000 000 hectares and it is estimated that some 17 000 wolves and coyotes have been killed, and the reservoir of rabies virus to that extent reduced. In Grenada (Windward Islands) the consultant assisted in a survey of sylvatic rabies and advised on control of the mongoose the probable local reservoir of the virus.

More information on rabies in vampire bats and the recent discovery in various parts of the United States of America and Mexico of evidence of rabies infection in insectivorous and fructivorous bats have led to increased study of vampire and other bats and their part in the rabies problem. Since its initial work on rabies in 1949 the Organization has continued its study of the distribution and migration of bats. The information gathered has been reported

from time to time in technical journals and is being collated for issue in a bat atlas.

Advice and assistance have been given on the determination of the need for prophylactic treatment in man and on treatment regimes. Short courses with emphasis on laboratory techniques, have been given by project staff for laboratory workers, epidemiologists, epidemiologists, physicians and veterinarians, and preliminary arrangements were made for a regional rabies training course to be held in 1956.

Assistance has also been given to start, improve and test the production of phenolized vaccine for dogs, avianized vaccine for dogs and for cattle, human vaccine and hyperimmune serum.

Virus rickettsial and other communicable diseases.

One of the more important health developments of the year was the demonstration of the possibility of producing in the laboratory a safe and reasonably effective vaccine against poliomyelitis. Unfortunate accidents

with the use of certain lots of commercially prepared vaccine temporarily postponed large scale campaigns. In November 1955 WHO called a meeting of leading experts from nine countries to summarize the present state of knowledge and to put before the Director General the essential facts on which future public health application of poliomyelitis vaccination under different epidemiological conditions might be based.

The report result-

ing from this meeting has been published by the Organization.¹ WHO continued its programme of study of poliomyelitis designating regional poliomyelitis laboratories in all regions.

A major problem of the control of smallpox in hot countries is the instability of glycerinated lymph on exposure to high temperatures. Some dried vaccines but not all, have greatly increased thermostability. As a result of laboratory and field tests sponsored by

FIG. 4 POLIOMYELITIS IN ISRAEL



Rehabilitation of a paralytic case under a demonstration and training scheme started with the help of WHO and UNICEF at Sarafand near Tel Aviv.

sera, and on the relative efficacy of different types of penicillin in the treponematoses. Close attention was paid to signs that the treponemes might be developing resistance to penicillin and to sensitization reactions. Neither of these possibilities seemed as yet to be of significance in the population groups treated in WHO assisted yaws or endemic syphilis campaigns. Reactions to penicillin are much more likely to occur in the economically developed areas where the use of the antibiotic is more common.

Zoonoses and veterinary public health

Highlights of the year's activities in zoonoses were the completion of a clinical field trial of hyperimmune antirabies serum in Iran, further study of the role of bats in the transmission of rabies, progress in the development of a vaccine against *Brucella melitensis* infection in sheep and goats, and termination and publication of a WHO sponsored survey of the geographical distribution of Q fever.

The Annual Report gives a summary account of rabies control work in the Americas, tracing progress and activities since 1949.

In November 1949 in response to requests from the Governments of Mexico and the United States of America the Organization assigned a rabies consultant to the border area of the United States and Mexico to co-ordinate work for the control of rabies and to assist in the training of personnel. Some eighty five people of various technical grades were trained. Campaigns against canine rabies were started, measures for the control of predatory animals were demonstrated and study was begun on the complicated problem of rabies in bats.

In June 1952 under an agreement with the Government of Mexico the antirabies work was extended to the whole country. An important feature of this project was the provision of technical assistance for the large-scale production of avianized antirabies vaccine as a result of which the Instituto de Investigaciones Pecuaras Palo Alto Mexico supplied at a low cost the vaccines needed by the campaigns for vaccinating dogs and cattle. This supply was later extended to other countries.

By January 1954 requests for assistance with rabies problems were so varied that an inter-country project was started to cover all aspects of rabies control including the work in the Mexico-United States area. The public health veterinarian for Zone II and a mammalogist were appointed to this work and short term personnel were assigned from time to time. By the end of 1955 requests for advice had been met from thirteen countries and territories—Brazil, Cuba, the Dominican Republic, Ecuador, Grenada, Haiti, Mexico, Panama, Peru, Surinam, Trinidad, United States of America and Venezuela.

FIG 3. RABIES CONTROL IN MEXICO



Injection of poison into a donkey's carcass for use as bait to kill wolves and coyotes which are an important reservoir of rabies virus in some areas.

The work done by the end of 1955 and that planned for the immediate future are described below.

The technical assistance provided for campaigns against canine rabies has ranged from simple personal consultation to assistance in preparing the complete plan of operations for a national campaign. The main subjects of inquiries have been effective control of stray dogs, legislation and procedures for the licensing and vaccination of dogs, and education of the public.

In addition to the work on bats, there were demonstrations of the best measures for the elimination of predatory and other wild animals to check the

giving good protection. Assessment of the value of alcohol killed and preserved vaccine must await the final results. The findings are likely to be useful for the many countries at present unable to embark on expensive large scale environmental sanitation programmes.

Growing interest in a world wide problem that of trachoma and associated infectious conjunctivitis estimated to affect about 4 million inhabitants of all continents was registered in 1955 among the Member States. While WHO continued to supply consultants for preliminary surveys and to plan activities in the requesting countries joint international assistance by UNICEF and WHO was continued to the pilot projects in China (Taiwan) Egypt Morocco Spain Tunisia and Yugoslavia and a new project was started in Indonesia. Following a programme of exchange of scientific information among trachomatologists of different countries WHO convened the second session of the Expert Committee on Trachoma in 1955 to review present knowledge on debated points of the etiology epidemiology therapy and prophylaxis to study techniques employed in the field projects and to advise on further development of the control activities. Important progress was registered in the differential diagnosis of trachoma from various other forms of follicular conjunctivitis and useful proposals made for the much needed standardization of epidemiological methods. The value of results obtained in the pilot projects was recognized and suggestions advanced for further activities. A programme of co-ordinated research on the virology of trachoma was started.

Among the various communicable diseases in which control methods are changing is leprosy the present trend is to discourage permanent and indiscriminate isolation in leprosaria and to treat leprosy like any other communicable disease by temporary isolation of infectious cases early diagnosis and ambulatory or domiciliary treatment.

Because of the dearth of consultants in leprosy WHO has been obliged to delay the granting of assistance to some of the requesting countries. The insufficient number of properly trained specialists to meet the increasing requirements of rapidly growing programmes represents a serious obstacle to further developments and consideration is being given to the question of providing in the future satisfactory programmes for the training of the necessary staff both at the national and at the international level.

FIG 7 YELLOW FEVER STUDY IN TRINIDAD



Since the various species of forest mosquito which carry yellow fever live at different heights tree ladders and platforms have to be used to capture some of the species for study. This work is part of a project to control insect-borne diseases in the Caribbean area.



FIG 5
PLAGUE IN INDIA

Unloading traps for rodent catching in the village of Khushpurwa Barabanki. The Government of India with the help of WHO and the Institut Pasteur at Teheran is carrying out an epidemiological survey and is training personnel in plague control work in endemic areas in Uttar Pradesh.

WHO during the past four years it is now known to be possible to prepare a consistently stable vaccine which will maintain its potency for many months at 45°C

The first strictly controlled field trials of

typhoid vaccine ever carried out are in progress in Yugoslavia, assisted by WHO and will be concluded in May 1956. Preliminary results available at the end of 1955 show that the heat killed phenol preserved vaccine is

FIG 6 TRACHOMA
CONTROL IN EGYPT



In WHO and UNICEF assisted projects for the control of trachoma in Egypt pupils are made responsible for treating each other with anti-biotic ointment.

Strengthening of malaria-control services

In Indonesia WHO through the services of expert personnel is assisting in the improvement of the national malaria programme and in the extension of the facilities of the Malaria Institute Jakarta. Similar aid is being given to Burma where a WHO malarialogist is acting as adviser to the Government in strengthening the Malaria Division of the Central Government. A WHO team has also been helping to expand the East Africa Malaria Unit at Arua Tanganyika into the East Africa Institute of Malaria and Vector borne Diseases.

Tuberculosis

Courses and conferences

Istanbul Two post graduate training courses one for tuberculosis physicians, and the other for tuberculosis nurses were held at the International Antituberculosis Training and Demonstration Centre in Istanbul. WHO contributed five lecturers and awarded 21 fellowships.

Tuberculosis Teaching Centre National Institute of Health Guayaquil Ecuador. A six week course was given for which WHO awarded fellowships to students from Bolivia the Dominican Republic Haiti Guatemala Panama, and Paraguay.

Advisory Group on Tuberculosis Control Luxembourg. This group composed of tuberculosis public health officers epidemiologists, clinicians statisticians and public health administrators reviewed present methods in tuberculosis control.

Control projects

Survey teams were sent to East Africa and West Africa to collect reliable field data for planning control programmes.

The following countries were given aid in developing or expanding tuberculosis-control services and in training staff: Burma Ceylon China (Taiwan) Greece Iraq Lebanon Saudi Arabia Sudan and Yugoslavia. The countries of South East Asia were assisted in developing laboratory work in connexion with the expansion of their tuberculosis services.

Tuberculosis control demonstration and training centres continued to receive WHO support in Afghanistan (Kabul) Burma (Mandalay) Ceylon (Colombo) Egypt (Cairo) India (Nagpur and Madras) Indonesia (Bandung) Iran (Teheran) Israel (Jaffa) Pakistan (Dacca and Karachi) and Syria (Damascus). Most of these centres aim to survey the extent of the tuberculosis problem to establish a tuberculosis service to train personnel in diagnosis and prevention. WHO is providing international technical personnel to assist all these centres.

BCG vaccination

Large-scale tuberculin testing and BCG vaccination were applied in projects in Cambodia Ceylon Colombia, Egypt Ethiopia India Indonesia Iran Iraq Jordan Libya Pakistan Paraguay Philippines Somalia Sudan Surinam Thailand, and Viet Nam. UNICEF also aided in these programmes except in Somalia, where aid is given under Technical Assistance. A BCG statistician who formerly worked at the Tuberculosis Research Office Copenhagen prepared a summary report on the UNICEF/WHO-assisted BCG campaigns in the Americas. BCG assessment teams visited campaign sites in the South East Asia Eastern Mediterranean and Western Pacific Regions to assess the results of campaigns and to prepare the way for future work.

Treponematoses and Venereal Infections

Conferences courses and research

International Conference on Yaws Control Enugu Eastern Nigeria. This conference was attended by 53 participants from 30 countries and all the regions.

Port Demonstration and Training Centre for Control of Venereal Diseases, Rotterdam. A report was prepared summarizing the conclusions of the study groups as reflected in two international training courses held at the Centre and intended for use in venereal-disease-control centres in major seaports. The issue of this report will conclude the project.

International Treponematoses Laboratory Center Johns Hopkins University Baltimore Md. A further grant was paid to the Center as a contribution to certain research on the biology of the treponematoses.

One of the projects which went forward during 1955 was that in Ceylon which aims to modernize the leprosy control programme by improving the work of the present institutions and developing a system of case finding, domiciliary treatment, and contact surveillance. During 1955, the Organization provided a leprosy specialist and an occupational therapist for this work as well as some supplies and equipment. The Annual Report furnishes a brief description of the year's activities.

The WHO team periodically examined patients under treatment at leprosy clinics, hospitals and colonies. A leprosy survey in Mulligama (in Uva Province) showed a local incidence of 5 per cent. A similar survey was made in parts of the Southern and Western Provinces and arrangements made for the systematic follow up of cases by public health inspectors. Physiotherapy was started at the leprosy hospital at Hendala. Case finding and domiciliary follow up work was extended at the central clinic at Colombo.

The WHO team visited cottage industry centres to ascertain the type of occupational therapy most useful to leprosy patients.

Training courses for supervisory public health inspectors, medical students and sanitary inspector trainees were held at Colombo and Kalutara. Lectures and demonstrations were given to sanitary inspectors of the municipality and to fourth year students of the medical college. Five medical officers were trained and assigned to survey and treatment work.

The meeting of a Study Group on Filariasis was convened by WHO in December 1955 at the Institute for Medical Research in Kuala Lumpur, Federation of Malaya, to review present knowledge on various problems relating to the possibility of control of this group of diseases. While emphasizing the problems posed by the differences in the biology of the species of mosquitos acting as vectors in planning vector control measures in the various countries, the meeting advised on the present possibilities and limitations for the use of both vector and parasite control measures and advanced useful suggestions for much needed standardization of methods for epidemiological surveys.

PROJECTS IN COMMUNICABLE DISEASE CONTROL

Malaria

Courses and conferences

Training course Yaounde, French Cameroons. A six week course in French for which WHO provided the expenses of participants from 11 countries or territories and the services of 15 experts.

Second African Malaria Conference, Lagos, Nigeria. This conference enabled malaria workers from most countries and territories in the Region and from Ethiopia, Somalia and the Sudan to assess progress in malaria control since the conference in Kampala in 1950.

Conference on Malaria Control, Belgrade. A discussion of inter-country co-operation in malaria control in south-eastern Europe in which Albania, Bulgaria, Greece, Romania, Turkey and Yugoslavia participated.

Control projects

Afghanistan, Bolivia, Burma, Cambodia, China (Taiwan), Ethiopia, French Africa, Indonesia, Iraq, Liberia, Nepal, Nigeria, North Borneo, Paraguay, Sarawak, Saudi Arabia, Somalia, Sudan and Syria were aided in control projects either by teams of technical personnel or by the services of short term consultants.

Anopheles and Aedes aegypti eradication

In the Caribbean area, Central America and Panama and Colombia, the Dominican Republic, Haiti and Mexico, malaria eradication is combined with the eradication of the yellow fever vector *Aedes aegypti*. WHO aid is largely in the form of the services of technical personnel.

Virus Centre Huipulco Mexico O F WHO is providing supplies and equipment for this centre which is being set up in order to learn more about virus diseases in Mexico

Smallpox In a project to improve production of smallpox vaccine in the Eastern Mediterranean Region WHO provided freeze-drying apparatus to laboratories in Iran Pakistan, and Syria

Plague International assistance was given in 1955 to the carrying out of a common programme of epidemiological research on sylvatic plague in the Middle East, in which interest was shown by the Governments of Iran Iraq Syria, and Turkey another international team collaborated with the national public health authorities in India to carry out an epidemiological survey on this condition in Uttar Pradesh.

Bilharziasis Control projects were continued in Egypt the Philippines and Syria, and begun in Iraq The Philippines project is a pilot study designed to investigate the relevant problems and to determine the most effective and economical means of control. In Syria, bilharziasis control has been combined with malaria control The snail identification centres in Paris Copenhagen and Salisbury continued their work on vector determination

Leprosy The Organization assisted in leprosy control in Ceylon Indonesia, Iran Iraq Paraguay and the Caribbean area (For information on the Ceylon project, see page 98)

Trachoma and associated infectious conjunctivitis Important achievements were obtained in various pilot projects carried out in different countries In China, for example the programme for the examination diagnosis and treatment of all the school children was successfully carried out, covering more than 1 557 600 schoolchildren examined and 1 122 582 put under treatment At the end of 1955 576 847 were recognized as already cured while more than 400 000 were still undergoing treatment Studies on the long-term evaluation of this programme for the control of trachoma among all the population and attempts to extend the treatment to all the family contacts of the schoolchildren are the further aim of this programme

In Morocco the possibility of satisfactory control of the yearly epidemics of infectious conjunctivitis through a mass prophylactic treatment of the population was confirmed while new evidence on the effect of this treatment on the associated trachoma was collected and simple treatment schedules were satisfactorily introduced The programme for the integration of the anti trachoma campaigns into the picture of the normal public health activities of the country by progressively educating the population towards a prophylactic family auto-treatment was continued in 1955 covering about 500 000 inhabitants of different districts The countries to which WHO consultants were supplied for preliminary surveys in 1955 included Algeria, Iraq Lebanon Morocco Spain, Tunisia Turkey and Yugoslavia The imperative need for training ophthalmologists in the public health control aspects of this group of diseases is emphasized.

Yellow fever A survey of yellow fever was made in Ethiopia between January 1954 and February 1955 WHO gave a grant to the Institut Pasteur Addis Ababa whose staff undertook the survey

Ankylostomiasis The epidemiology of ankylostomiasis was studied in Syria, and plans were drawn up to control the disease by improved environmental sanitation and other means

Trypanosomiasis A project in trypanosomiasis control in Sudan aims to organize both emergency measures for control, by chemoprophylaxis in the first instance, and to plan permanent control measures.

Relapsing fever Assistance was given to research carried out in Tunisia and Ethiopia to compare the local strains of the louse borne form of this disease, in an attempt to study the possible origin of the epidemics which have on repeated occasions seriously affected the population of large areas of east, central, and north Africa, the Middle East and eastern and southern Europe. Strains were successfully isolated in Ethiopia and are now under observation at various institutes in Europe and Africa

Arthropod borne diseases A team was provided by WHO to survey arthropod borne diseases in Iran for a project which includes not only the development of techniques for the simultaneous surveying of the diseases in this group present in an area and the training of the staff but also the study of the common methods of control suitable for application under the different local conditions

Other endemo-epidemic diseases In Spain, a WHO consultant in leptospirosis aided in a control project and other help was given in certain aspects of strengthening communicable-diseases-control services. In Syria, a dermatologist and an X ray technician provided by WHO helped to set up a centre for favus control and made plans for another similar centre A team of three WHO consultants gave lectures in a refresher course on infectious diseases in Yugoslavia another consultant assisted in pertussis vaccine production in the same country

including immunological studies development of tests and similar activities under the WHO programme of research co-ordination in this field

Course on dermatology and venereology at the University of Madrid WHO assisted in the organization of a post graduate course on dermatology and venereology as part of a project against syphilis in Spain.

Control projects

Yaws control was the object of WHO aided campaigns in the British Cameroons the Caribbean area, Fiji, Gold Coast Haiti India Indonesia Laos Liberia, Malaya Netherlands New Guinea Nigeria Solomon Islands Thailand and Western Samoa In Bechuanaland a pilot project against endemic syphilis was continued In Iraq and Syria efforts were likewise directed against endemic syphilis in the former country WHO aid consisted of the services of a short term consultant who visited certain areas to help evaluate the work done since the project started in October 1950 (WHO and UNICEF aid ended in December 1952) and to make recommendations for future work

The Organization assisted in venereal disease-control programmes in Burma China Ethiopia India, Iran Morocco and Saudi Arabia

Zoonoses and Veterinary Public Health

Zoonoses

General The Organization is helping to develop zoonoses-control programmes in Argentina Chile and Uruguay

Rabies In July 1955 a course was held in Muguga Kenya to study the latest and probable future trends in rabies control It was attended by 40 medical officers and veterinarians from African countries and territories. Work was continued on inter regional field trials in rabies treatment in which laboratories in five countries are collaborating In the Americas rabies-control efforts proceeded in an international programme which was initiated some years ago (see page 94)

Brucellosis The fourteen FAO/WHO brucellosis centres continued their work on standardization of diagnostic tests bacteriological studies investigations on human therapy vaccines for the prevention of the disease in animals and studies on the pathogenesis of brucellosis

Leptospirosis In November 1955 a Study Group on Leptospirosis with FAO participation met in Amsterdam to consider laboratory problems concerned with the diagnosis of leptospirosis and typing of the organism. The Group recommended the establishment of reference leptospirosis laboratories to serve various regions of the world in assisting laboratories in them to make epidemiological surveys and to serve as reference centres for typing of the leptospira organism It is expected that more uniform techniques and interpretations of tests will be accomplished through these reference centres

Veterinary public health

A seminar on meat hygiene was held in Alexandria Egypt in July 1955 WHO provided two consultant instructors and granted 12 fellowships for participants from Ethiopia Iran Iraq Jordan Lebanon Saudi Arabia Sudan and Syria

An advisory group on veterinary public health met in Geneva in June 1955 to advise on the development of veterinary public health work in Europe to discuss the principal problems involved and to recommend control procedures

Virus Rickettsial and Other Communicable Diseases

Polio myelitis Training courses Copenhagen and Paris These courses assisted by WHO gave instruction to physicians and nurses in the management of polio myelitis patients with forms of the disease dangerous to life Polio myelitis centres These centres collect and study strains of polio virus from different parts of the world undertake epidemiological studies for the eventual use of vaccines and train virologists in the latest tissue culture techniques

Influenza centres The centres continued to collect and study strains of influenza virus from different parts of the world watch for outbreaks of influenza and classify the type of virus so that the appropriate vaccine might be prepared undertake epidemiological studies and train virologists in influenza techniques

work part of the public health services on training personnel and on studying the mental health problems of children

A number of studies were continued during the year a third meeting of the Study Group on the Psychobiological Development of the Child was held a study on the electrophysiological aspects of child development, initiated in 1954 went forward and a grant was again made to the British Medical Research Council's Group for Research in Infantile Malnutrition for study of electrophysiological and psychological changes in children suffering from kwashiorkor

A study group on juvenile epilepsy was convened in London in October to discuss the physiological paediatric genetic and public health aspects of juvenile epilepsy and to consider the establishment of community programmes for epileptic children There was also a meeting of an expert committee on psychiatric nursing which made recommendations concerning the training of nurses for work with mental patients and means of raising the standards and prestige of this branch of nursing

In addition to the above activities the Organization's mental health programme included direct services to certain governments through consultant services and the award of fellowships (see page 109)

Maternal and child health

The many requests that WHO received during the year for assistance in developing health services for mothers and children showed that many governments were willing and prepared to give increased support to this work

Different approaches to problems in maternal and child health have become evident in WHO aided field projects in some countries maternity care has been selected as the starting point and emphasis given to training of midwives and of traditional birth attendants in other countries auxiliary health

visitors have been considered the most practical and effective means of raising the standard of child care and in still others there has been a trend towards developing health programmes for mothers and children as part of a comprehensive public health service often for a rural area The chief handicap regardless of the approach is lack of trained personnel particularly for teaching supervisory and administrative posts A large part of WHO's work has therefore been devoted to aiding in the establishment or expansion of programmes for training professional and auxiliary workers

An interesting illustration of the type of work done in WHO assisted maternal and child health projects is afforded by that in Taiwan which is described at some length in the Annual Report

The maternal and child health project in Taiwan began in the autumn of 1952 with assistance from UNICEF and WHO in the provincial town of Taichung, some distance from Taipei A doctor a public-health nurse and a midwife set up a demonstration centre at which to teach and to work with the counterparts selected by the Government until they formed an effective team

In January 1953 the training of nurses and midwives began Some were selected as supervisors and given an extended course of training the others came to the centre for two months lectures demonstrations and work under supervisors Only a few doctors could be trained, because the paediatrician who came with the other members of the team in 1952 could stay for only one year and it was another year before her successor arrived By January 1955 the four week courses for doctors were well under way and by July doctois as well as nurses had been trained from each of the seventy-seven health stations that had been included in the scheme Particulars of the training courses held up to the end of 1955 and the number and type of students trained are shown in the following table

Type of role	Course held	Duration	% of total
Medical officers	9	4 weeks	96
Nurse/midwife supervisors	4	4 months	23
Nurse/midwives	9	8 weeks	145
Student nurses	10	7 weeks	91
Medical students	—	4 weeks	19

— continued

PUBLIC HEALTH SERVICES

In its assistance to governments in strengthening public health services the Organization has been able to examine some of the fundamental difficulties with which many countries are faced. Chief among these difficulties are the failure to recognize that the health administration must play an important part in a country's social and economic development, the lack of attraction that full time service in public health has for the majority of medical graduates and the slowness of the health services to reach certain local populations particularly those in rural areas.

Through its area representatives public health advisers, consultants and field teams WHO has given assistance to a number of countries in the Americas, South East Asia and the Eastern Mediterranean Region in surveying health conditions, formulating national health legislation, planning long and short term health programmes, training health workers and developing local health services. The need for public health personnel has been met in some countries through integration of curative and preventive services and the use of auxiliary health workers. The Organization has assisted in the training of such workers.

In addition to direct advisory services to governments WHO has extended to India and Puerto Rico studies initiated in 1954 on local health administration. Preliminary investigations of three areas in Sweden, England, and the Netherlands were made at the end of 1954 and further studies into family health conditions were begun in 1955 in two of the areas.

A meeting of the Study Group on Measurement of Levels of Health was held in October 1955 to consider present knowledge of this subject and suggested possible health indicators based on available statistical informa-

tion. Such health indicators are needed for guiding the development of national health services.

Nutrition

Malnutrition and under nutrition in infants and young children remained one of the principal concerns of WHO in its nutrition programme in 1955. In addition to making grants to nutrition institutes for the study of protein malnutrition the Organization participated in a conference on this subject which was held in Princeton, N.J., USA under the joint sponsorship of FAO, WHO and the Josiah Macy Jr Foundation. A consultant was sent to Central America to investigate social conditions and attitudes that seem to contribute to protein malnutrition.

A study of anaemia was begun which is to include a compilation and critical analysis of the existing information on anaemias particularly in relation to the importance of parasitism and dietary insufficiency in their aetiology. Inquiries were initiated in India and in Mauritius—both countries in which anaemia is a significant cause of morbidity and mortality.

A monograph on endemic goitre was prepared for publication in 1956.

More information on WHO's work in nutrition during the year will be found in the project list on page 108.

Mental health

Two obstacles continued to stand in the way of development of mental health work: the world shortage of adequately trained personnel and the lack of understanding of the basic causes of mental ill health. Emphasis in 1955 was again on making mental health

FIG 8 TUBERCULOSIS
CONTROL AND
TRAINING INSTITUTE,
Dacca Pakistan



*Discussion of a clinical
case during a training
class for doctors at the
Institute*

Many changes have taken place since the project was started. The hospital has been completely remodelled, and the facilities for nursing greatly improved. The assistance of the public has been solicited, with the result that amenities have been provided for the nurses and that they have better living quarters.

Public interest in nursing is gradually growing. There are only ten more students so far but the minimum educational requirement for entrance has been raised to a ninth-standard pass, and most students are at least of university matriculation standard there are practically no voluntary withdrawals.

The Government has increased the number of posts for trained nurses from twenty-six to fifty-six. Most of the trained nurses have had an "in-service" course in ward management and supervision. Five have been trained as nurse educators and of these two have been abroad on study fellowships. Two Pakistani nurse educators capably manage the school and are carrying on a recruitment programme.

The curriculum has as far as possible been revised to correlate theory and practice. Public health instruction has been included and plans made for practical work in public health. One international nursing arts instructor has been replaced by a nurse educator in midwifery. With her assistance and the co-operation of the maternal and child health and tuberculosis teams it is hoped that the public health work can be further extended.

Social and occupational health

In its programme in the organization of medical care WHO has given advice to governments on hospital administration and management, modern hospital construction and design, and the improvement of specific hospital services. For example in 1955 Turkey was aided in comprehensive hospital construction and administration and a number of countries were assisted in developing special hospital departments—Iran an X-ray department, Ceylon Jordan and Saudi Arabia anaesthesiology departments and Saudi Arabia a blood bank. Israel was assisted by a short term consultant in planning services for chronic diseases.

The Organization continued to promote interest on the part of national administrations and of the medical profession in problems of occupational health and to assist in training personnel for industrial health services.

Rehabilitation of the physically handicapped received its share of attention. The

A three day seminar was also held for the health directors of the twenty two health stations in Taichung

At the end of 1955 three members of the national team were studying abroad with WHO fellowships and two of the supervisors were in Japan with fellowships from the United States International Co-operation Administration

At the demonstration centre in Taichung are held pre natal and post natal clinics well baby clinics classes for pre school children mothers classes and immunization clinics are held once or twice a week and are very popular with the parents in the district. The staff of the demonstration centre help the students doctors and nurses in their work with patients and with health education in the clinics and in the homes. The students attend and take part in the regular

"Lin" meetings—meetings held in each neighbourhood unit where doctors and nurses talk on health problems. Emphasis throughout the training is on the development of a warm co-operation between staff and parents and on the personal participation by each student in each part of the training. Supervisors have been trained to show the students how the lessons learnt in the course and at the demonstration centre can be put into practice and adapted to conditions in the health stations

At this stage it is difficult to assess the long term effects of this project. One success of the first three years of work is that the Government has prepared a plan for a five year extension of the project to cover all the health stations in the island and the first members of the staff of these health stations have already been to Taichung for their training

As in previous years many of the WHO aided programmes in maternal and child health also enjoyed UNICEF support

Nursing

WHO's programme in nursing helps governments to establish or improve training for nurses and midwives and to improve nursing services in general. To this end the Organization assists in training activities of various types in many parts of the world

In 1955 38 nurses and midwives were added to the WHO staff, and at the end of September 185 were engaged in country programmes. Fifty six of the nurses were assigned to work with national counterparts in projects in basic nursing education

Increasing attention was given to the training of midwives and an expert committee on this subject was convened. Psychiatric nursing too received particular attention

In addition to working in field and educational projects WHO appointed nurses aided the national health administrations of five countries in planning nursing services

The nurses' training project in Pakistan gives an idea of the nature of the work and the problems involved in such projects

After a survey of nursing in Pakistan in 1951 the nurse training project was started at the Medical College Hospital in Dacca in the following year. UNICEF supplied the equipment required for teaching and for the maternity and paediatric departments of the hospital. WHO provided three nurse educators and five fellowships for advanced study for Pakistani nurses

The aim of the project is to strengthen nursing in East Pakistan by providing more nurses by training nurses as instructors and administrators by revising the curriculum to meet the health needs of the people and by advising the Government on all matters pertaining to nursing

The Medical College Hospital the largest and the best teaching centre in East Pakistan had very limited facilities for teaching and for nursing. Six hundred patients were crowded into space intended for 500 and 400 medical students were receiving instruction in the wards. Fifteen trained nurses were attempting to cope with the administrative demands of twenty three wards and departments and the educational needs of the student nurses. Only two of the trained nurses had had more than two years experience and none had had any type of post basic education

There were sixty four student nurses. The minimum educational requirement for entrance to the school was a sixth standard pass. Most of them had had less than eight years of general education. The annual losses of students from voluntary withdrawal ranged from 60 to 65 per cent. The average annual output of trained nurses was less than ten

The immediate needs seemed to be to improve the facilities for training to keep student nurses in training and to develop a public relations programme to encourage women to enter for training. These were necessary steps before there was any hope of revising curricula or raising standards of education

education of the public was to help those responsible for national health programmes to organize health education for the public on sound lines and to extend the practical use of educational methods in their public health services. This work has included assistance in the organization and conduct of seminars and conferences and of training courses in health education, the granting of fellowships, the provision of international health educators to work with national health departments and of short term consultants to meet special requests.

WHO co-operated with seventeen governments in planning and developing local and national health education work as part of public health programmes, and with twenty-one governments in preparing for national or inter regional seminars on health education of the public.

In 1955 many programmes were consolidated and the results of previous work became more apparent. The health departments of some countries now employ in the technical planning and development of health education services national staff who have received training in public health and health education either through WHO fellowships or with the help of bilateral agencies. In other countries national staff so trained have been appointed by the national authorities to public health institutes to assist in developing training courses in health education for medical and public health workers and to provincial or state health services.

WHO gave aid in training projects for health education of both professional and auxiliary health workers. Post graduate courses were organized in institutes and schools of public health. The Organization took part in several local and national conferences and training seminars on health education of the public and questions of health education were considered at three

important technical conferences—on yaws, malaria and environmental sanitation.

Health work among the Palestine refugees

The Organization continued in 1955 to plan and direct the health programme of the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) providing the services of a full time medical officer, a malariologist, a public health engineer, a health educator and several part time consultants.

The general health of the refugees remained good throughout the year. None of the quarantinable diseases was reported. The main diseases were gastro-enteritis, dysentery, trachoma and conjunctivitis during the hot months and upper respiratory infections during the rest of the year. A high level of immunity was maintained by prophylactic immunization: 257 200 TAB inoculations, 58 000 diphtheria inoculations and 952 000 smallpox vaccinations were performed. There was a marked decline in the number of reported cases of clinical malaria.

Nutrition, environmental sanitation and personnel training programmes were continued.

The personnel of the Health Division at the end of June 1955 numbered 3050. Of these 19 were international employees and the rest local employees, mainly Palestine refugees.

PROJECTS IN STRENGTHENING PUBLIC HEALTH SERVICES

General Assistance to Health Administrations

Seminar

Public Health Seminar, Eastern Mediterranean Region. Senior public health administrators from Aden, Cyprus, Egypt, Ethiopia, French Somaliland, Iran, Iraq, Jordan, Lebanon, Libya, Saudi Arabia, Somalia, Sudan, Syria and Yemen were convened to discuss common health problems.

work devoted to handicapped children is noted in the project list under maternal and child health (see page 110). In other projects the Organization collaborated with the United Nations UNICEF and non governmental organizations such as the International Society for the Welfare of Cripples and the World Veterans Federation. For example WHO gave technical advice in a project in Indonesia for which the World Veterans Federation met the cost of the staff. Rehabilitation projects in India and Israel were completed.

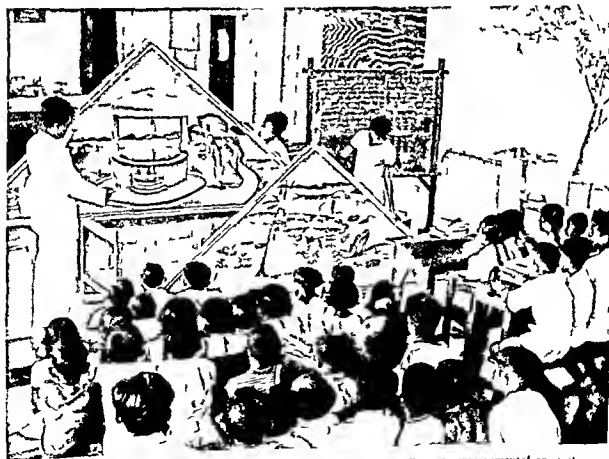
In an effort directed towards prevention of traffic accidents WHO at the request of the United Nations convened in 1955 a consul-

tant group on medical requirements for the licensing of motor vehicle drivers. This meeting in which the United Nations the ILO and the International Council of Ophthalmology also participated led to the preparation of a document for the guidance of medical practitioners in examining applicants for motor vehicle driving permits and to recommendations for the guidance of licensing authorities on methods of determining the mental and physical fitness of applicants for driving permits.

Health education of the public

In 1955 as in previous years the principal objective of the Organization's programme of work on health

FIG 9 HEALTH EDUCATION IN CEYLON



Bright painted panels used in a primary school in a small town to illustrate environmental sanitation

education of the public was to help those responsible for national health programmes to organize health education for the public on sound lines and to extend the practical use of educational methods in their public-health services. This work has included assistance in the organization and conduct of seminars and conferences and of training courses in health education, the granting of fellowships, the provision of international health educators to work with national health departments and of short term consultants to meet special requests.

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Improvement and expansion of health services

Improvement of health administration and expansion of health services WHO aid largely in the form of services of advisers and other personnel and the award of fellowships was given to Afghanistan Burma Cambodia, Ethiopia Iran Paraguay Saudi Arabia Viet Nam Yemen and Yugoslavia

Development of rural or other local health services Emphasis was on rural or provincial health development in projects in Afghanistan Barbados Burma Ceylon Colombia Ecuador Egypt El Salvador Guatemala, Haiti Honduras Mexico Nicaragua Panama Peru Thailand Uruguay and Venezuela In Egypt and El Salvador work was continued in demonstration and training areas where model services are being established and personnel trained A similar approach is being used in projects in Guatemala Haiti Peru and Venezuela In the Andean highlands of Bolivia Ecuador and Peru WHO is taking part in a "joint field mission on indigenous populations" with the United Nations and the other specialized agencies

School health services Iran and Thailand were assisted in the development of school health services

Dental health In Indonesia a consultant surveyed the dental health needs and began to prepare recommendations for a programme to raise the standard of dental health In Switzerland a consultant assisted in planning and initiating school dental health services based on mobile clinics in a mountainous region

Nutrition

Courses and conferences

FAO/WHO Nutrition Course Marseilles This course in French was the second course of its kind for medical officers pharmacists chemists and veterinarians who are to work in Africa WHO awarded 18 fellowships for participants from Angola Belgian Congo French West Africa Madagascar Morocco (French Zone) Mozambique and Somalia

FAO/WHO Nutrition Education and Health Education Seminar Baguio City Philippines A conference attended by more than seventy participants from the Western Pacific and South East Asia Regions

Study Group on Atherosclerosis and Ischaemic Heart Diseases This group considered among other subjects the relationship between habitual diet and degenerative heart diseases

Aid to nutrition institutes

Grants were made to the Nutrition Research Laboratories of the Indian Council of Medical Research Coonoor to the British Medical Research Council's Group for Research in Infantile Malnutrition Kampala Uganda and to the Institute of Nutrition of Central America and Panama Guatemala City to enable them to continue investigations on protein rich foods

Institute of Nutrition Jakarta Indonesia Protein malnutrition syndromes in particular were studied and in service training programmes were started for dietitians and other health personnel Surveys were made on the public health aspects of malnutrition and a WHO sociologist who visited Indonesia in 1954 assisted in an inquiry into some of the factors other than poverty which contribute to child malnutrition The Organization provided a medical nutritionist and two international twelve month fellowships for work in connexion with this project in 1955

Nutrition Institute University of Teheran Iran WHO assisted in the first phase of the establishment of a nutrition institute as part of this university

Projects

Burma An intensive effort is being made to reorganize the nutrition services and carry out a nutrition programme WHO has provided a medical nutritionist and a biochemist technician as well as some supplies and equipment

Uganda A medical officer and a nutritionist were assigned to a project in Uganda which aims to determine the state of nutrition of representative population groups in suitable parts of the country and to assess the connexion between local dietary customs and any nutritional defects that may be found

Morocco Fellowships were awarded as a contribution to an effort to improve child nutrition

Mental Health

Seminars courses and other meetings

Seminar on Mental Health Uruguay WHO provided three short term consultants 25 fellowships for participation, and some supplies and equipment for this seminar for child psychiatrists and paediatricians working in mental health in the Latin American countries

Seminar on Children in Incomplete Families Germany This seminar organized by the European Office of the United Nations Technical Assistance Administration and the German Federal Ministry of the Interior was attended by a WHO temporary adviser who gave lectures and led discussion groups

Course for personnel dealing with children deprived of a normal family home Paris WHO awarded a fellowship to a Spanish physician to attend this course, which was organized by the International Children's Centre

Refresher course in psychiatry Copenhagen A WHO consultant gave a refresher course in psycho-analytic therapy to Danish psychiatrists and supervised other work for five weeks

Advisory Committee on Mental Health Problems of Displaced Persons, Geneva This group studied a report on a pilot survey carried out in Austria on the mental health problems of long term refugees in camps especially children

Study Group on Mental Health through Public Health Practice Monaco WHO met the expenses of 19 participants from Austria, Finland France Germany (Federal Republic) Italy the Netherlands Norway Sweden Switzerland the United Kingdom and Yugoslavia who examined the practical problems posed by the need to introduce principles of mental hygiene into the practice of public health and medical care

Projects

Development or strengthening of mental health services Aid was given to projects in Austria Burma, Ceylon China (Taiwan) and Thailand This aid consisted largely of the assignment of short term consultants to make surveys and draw up plans.

All India Institute of Mental Health Bangalore A psychiatric nurse and a neurologist-electrophysiologist were appointed to help establish a post-graduate training programme in psychology mental hygiene psychiatry and psychiatric nursing, and a programme of research in psychiatry neurology and neuro-surgery National counterparts are to be trained to take over from the WHO personnel

Mental Health, Bethlehem Hospital Jordan A mental health expert and a hospital architect were assigned to a project to improve and expand mental health services particularly to increase facilities at the Bethlehem Mental Hospital

Studies

Mother and child separation study United Kingdom and France Financial support continued to be given to this study which began in November 1952.

Survey on alcohol problems in Europe A grant from WHO is assisting the Institute for Research on Problems of Alcohol to collect and systematize material on selected aspects of the problems of alcohol in European countries

Maternal and Child Health

Courses and conferences

Course on the medico-social problems of the mother and child, Paris This course held at the International Children's Centre was attended by social workers and public health nurses. WHO provided nine fellowships for public health nurses from Denmark Finland Germany (Federal Republic) Morocco (French Zone) the Netherlands, Norway Portugal, Sweden and Switzerland.

Course on social paediatrics (for medical officers) Paris This course was also organized by the International Children's Centre Eight trainees from Denmark, Finland, France Morocco (French Zone) the Netherlands Portugal Sweden and Switzerland attended with WHO fellowships

Course on the medical social and educational problems of children suffering from sensory disabilities Paris Two WHO fellows from Greece and Tunisia attended this course at the International Children's Centre

Study meeting on neonatal problems A meeting organized by the School of Puericulture of the Faculty of Medicine in Paris at which two WHO consultants gave lectures

Projects

Improvement and/or expansion of maternal and child health services WHO aid largely in the form of services of expert personnel and the award of fellowships was given to projects in Afghanistan Cambodia China (Taiwan) Hong Kong India Indonesia Nigeria Spain Thailand Turkey Viet Nam and Yugoslavia.

Maternal and child health demonstration and training centres These continued to receive WHO assistance in Iran Iraq Jordan Libya Pakistan and Syria

Maternal and child health/nursing India Projects combining the development of maternal and child health services with the training of nursing personnel were aided in Travancore Cochin Uttar Pradesh Bihar Hyderabad Madhya Pradesh Bombay and Saurashtra Post graduate and refresher courses in maternal and child health and public health nursing were begun in Calcutta and Ludhiana

Rehabilitation of handicapped children Programmes were continued in Austria Greece Israel Italy Lebanon and Yugoslavia

Premature infants The care of premature infants was the object of WHO aided projects in Chile Egypt and Italy

Nursing

Courses seminars study groups

Refresher course in paediatric nursing Burma A course for teachers of paediatric nursing held at the General Hospital Rangoon

Refresher course India A course in Hyderabad attended by 16 instructors of auxiliary nurses and midwives Particular attention was given to domiciliary nursing

Short term refresher courses for nurses India Two courses were given one in Bombay with 17 students attending and the other in Trivandrum with 14 participants The courses included discussions field visits and practical training

Nursing Education Seminar Fiji A seminar for the Western Pacific Region for which WHO provided 4 consultants and 7 nurses and met the expenses of 40 participants

Study Group on Basic Nursing Curriculum Brussels The principles of a basic nursing curriculum its content applications and evaluation were studied by a group composed of members of various disciplines WHO provided a consultant organizer and met the expenses of 13 participants from 10 European countries

Education projects

Training programmes Assistance was given largely through the services of nurse educators in training programmes of varying scope and nature in Bolivia Burma (3 projects) Cambodia Ceylon (2 projects) China (Taiwan) Costa Rica Cyprus India (3 projects) Indonesia Iran Japan Jordan Libya Malaya Nepal Nicaragua North Borneo Pakistan Singapore Sudan Switzerland Syria (2 projects) Thailand (2 projects) and Tunisia

Advanced nursing education Two regional projects in advanced nursing education were aided one at the Higher Institute of Nursing in Alexandria Egypt and the other at the School of Public Health of the University of Chile designed to serve Latin America

Midwifery training Projects were assisted in Haiti Iran and the Philippines

Training of auxiliary personnel In Guatemala nurses were trained to serve as instructors of auxiliary nursing personnel

Paediatric nursing In Indonesia a project at Gadjah Mada University Jogjakarta was directed towards the improvement of child care by better training in paediatrics

Advisory services

Nurse advisers were provided to aid health authorities or other government officials in developing and improving nursing services and education in Burma Israel Pakistan and Turkey

Medical care

Blood bank Saudi Arabia A WHO expert adviser was assigned and some equipment provided to start a blood bank for the hospital services and to train personnel in its techniques in Jeddah.

Cancer institute Iran The Organization sent an expert cancerologist and furnished minor surgical equipment and supplies to help set up a cancer institute for diagnosis and treatment, survey the incidence and character of the disease in this country train personnel in modern treatment methods and plan for future work.

Chronic diseases services Israel A study of the problem of care of persons suffering from chronic diseases was begun in Israel with the aid of a WHO consultant.

Radiology Iran WHO assigned a short term consultant to aid in installing X ray equipment and training staff in its use at Firoosabadi Hospital near Teheran.

Occupational health

Refresher course on occupational health, Paris WHO sponsored 13 fellows and contributed two lecturers for this course held under the auspices of the French Ministries of Health and Labour at the National School of Public Health.

Social and occupational health Yugoslavia Aid has been given in the form of fellowships and provision of electronic equipment for the Institute of Industrial Hygiene Zagreb in a project which aims to strengthen occupational health services to meet the needs arising from the rapid industrialization of the country.

Rehabilitation

Israel A physiotherapist tutor was provided by WHO for two years (1953-55) to assist the Government in establishing a national school of physiotherapy and rehabilitation services in the Sarafand Hospital which cares mainly for physically handicapped children. The Organization also awarded two fellowships for this project.

India WHO provided one physiotherapist tutor for three years starting from 1952 and one clinical physiotherapist for one year to assist the Government in establishing a physiotherapy department and school at the KEM Hospital Bombay.

Health Education of the Public

Field projects in health education of the public Aid was given in Burma Ceylon Italy Liberia Libya Paraguay and Turkey.

Arab States Fundamental Education Centre Sids-el Layyan Egypt A public health adviser a health educator and fellowships were provided for work in connexion with this centre which is assisted primarily by UNESCO.

Americas regional programme An effort is being made to determine the health education needs of Mexico Central America, Panama, and the Caribbean area to select and train health educators and to train various categories of public health workers in health education.

Cultural anthropology A WHO assigned cultural anthropologist and a health educator continued to carry out surveys and studies of current health education problems in Central America and Panama, in order to obtain basic data for adjusting health programmes to actual needs.

All India Institute of Hygiene and Public Health WHO assigned a consultant in health education to the faculty to assist a national counterpart in the development of training courses in health education for students enrolled in courses for the diploma of public health for bachelors of public health for the diploma in maternal and child welfare and for the certificate of public health nursing.

UNRWA/WHO WHO continued to assist UNRWA with the sponsorship of a health education training project. During the year nine students who had completed the first full course of 12 months training were employed by UNRWA as health education workers in the Agency refugee camps. Eleven additional students completed their training in November 1955.

FAO/WHO Nutrit on Education and Health Education Seminar See page 103.

ENVIRONMENTAL SANITATION

During 1955 the Organization sought to stimulate interest in programmes in environmental sanitation by holding several seminars and symposia (see project list below). These meetings together with various courses and aid to teaching institutions also did much to promote the training of personnel for sanitation work.

In field projects special attention was devoted to rural sanitation. Vector control also received particular emphasis in view of the increasing significance of the resistance of insects to insecticides already referred to in the section on malaria control (page 91).

Food hygiene was the subject of the fourth session of the Expert Committee on Environmental Sanitation held during the year. The Organization continued to work with FAO and UNICEF on milk sanitation. Perhaps the most important development with regard to milk quality control and its relationship to public health was a request made by nine countries in the Americas, Europe, the Eastern Mediterranean Region and South East Asia for inter agency surveys on the production, processing and distribution of milk.

During the year WHO completed a world wide survey, started in 1953 in preparation for the establishment of international standards of water quality and standard methods of water examination. The data collected were sent to regional groups of experts for discussion and meetings of such groups were held in Europe and in the Eastern Mediterranean Region.

In response to many requests the Organization began to collect similar information on the fluoridation of water in Member countries.

A manual on the composting of organic wastes for sanitary disposal and reclamation was in an advanced stage of preparation at the end of the year and a guide on the hygiene and sanitation of airports, prepared in collaboration with the International Civil Aviation Organization was nearly completed.

A new problem in environmental control which began to be given serious consideration is the disposal of radioactive wastes. This was one of the subjects dealt with in a course for health physicists which was held under the auspices of the Government of Sweden, the United States Atomic Energy Commission and WHO (see page 117).

PROJECTS IN ENVIRONMENTAL SANITATION

Education and training

Training course for waterworks operators. Guatemala. A course to serve Mexico, Central America and Panama in which waterworks operators were trained in better methods of operating existing plants and maintaining plant equipment, and in ways of improving water quality.

National training course in sanitary engineering. Lisbon. WHO contributed two lecturers to this course designed to give municipal and district engineers an understanding of the health implications of their work and basic information on the technical principles of modern design.

Insect control training course Rome. A second course (the first was in 1953) organized with the Istituto Superiore di Sanità on the control of insect vectors of disease. WHO provided fellowships for five participants from the African Region, two from the Eastern Mediterranean, and nine from Europe.

Sanitarians training course Cairo. A one year course sponsored by WHO and organized under the supervision of the Institute of Hygiene, Cairo, and of the Egyptian Ministry of Public Health, to provide training for auxiliary sanitarians for the countries of the Eastern Mediterranean Region that do not yet have their own training courses, and to staff rural health and sanitation programmes.

Seminar on Sanitary Engineering, Puerto Rico (for countries of the Americas). WHO awarded short term fellowships for participants from Cuba, the Dominican Republic, Haiti, Mexico, and various territories of the Caribbean. It was the first seminar on this subject for countries of the Caribbean area.

Environmental Sanitation Seminar, Ceylon. This seminar was attended by 34 participants from 11 countries of the South East Asia and Western Pacific Regions. The chief topic was the sanitary disposal of sewage and human waste.

Environmental Sanitation Seminar, Ibadan, Nigeria. A seminar for Africa, to discuss ways of improving environmental sanitation in the Region.

Symposium on the Training of Sanitary Engineers, Oxford, England. A symposium for consideration of the kinds of training that will provide the type of sanitary engineer most suitable for work in Europe.

Environmental sanitation training, Brazil, Chile, and Mexico. A training project to serve all countries of the Americas in which sanitary engineers and auxiliary personnel are to be prepared for work in national and local health departments. The project is also intended to extend and strengthen facilities for training in environmental sanitation at the schools of public health in Sao Paulo, Santiago, and Mexico City.

Sanitary engineering teaching, Alexandria University, Egypt. WHO is providing a professor of sanitary engineering, a fellowship, and some library and teaching equipment in this effort to strengthen and extend teaching of sanitary engineering in the Faculty of Engineering of the University.

Public health engineering, University of Madras, India. A professor of public health engineering has been provided to help establish a department of public health engineering and to organize class and field training in this subject.

Field projects

Environmental sanitation. Projects to improve environmental sanitation were aided—largely through provision of technical personnel, fellowships, and some supplies and equipment—in Afghanistan (2 projects), Ceylon, China (Taiwan), Greece, Japan, North Borneo, Philippines, Saudi Arabia, and the Seychelles.

Insect control. A short term consultant was sent to Israel to help in the control of flies. Another consultant assisted in the control of the tse tse fly in Bechuanaland.

Food hygiene. A short term consultant made a survey of food hygiene in Iran.

Special studies

Drinking water standards. Two regional advisory groups on drinking water standards met in 1955, one for the Eastern Mediterranean, and the other for Europe.

Sanitary engineering terms. With UNESCO, WHO continued work on an English-French dictionary of sanitary engineering terms.

ENVIRONMENTAL SANITATION

During 1955 the Organization sought to stimulate interest in programmes in environmental sanitation by holding several seminars and symposia (see project list below). These meetings together with various courses and aid to teaching institutions also did much to promote the training of personnel for sanitation work.

In field projects special attention was devoted to rural sanitation. Vector control also received particular emphasis in view of the increasing significance of the resistance of insects to insecticides already referred to in the section on malaria control (page 91).

Food hygiene was the subject of the fourth session of the Expert Committee on Environmental Sanitation held during the year. The Organization continued to work with FAO and UNICEF on milk sanitation. Perhaps the most important development with regard to milk quality control and its relationship to public health was a request made by nine countries in the Americas, Europe, the Eastern Mediterranean Region and South East Asia for inter-agency surveys on the production, processing and distribution of milk.

During the year WHO completed a world wide survey, started in 1953 in preparation for the establishment of international standards of water quality and standard methods of water examination. The data collected were sent to regional groups of experts for discussion, and meetings of such groups were held in Europe and in the Eastern Mediterranean Region.

In response to many requests the Organization began to collect similar information on the fluoridation of water in Member countries.

A manual on the composting of organic wastes for sanitary disposal and reclamation was in an advanced stage of preparation at the end of the year and a guide on the hygiene and sanitation of airports prepared in collaboration with the International Civil Aviation Organization was nearly completed.

A new problem in environmental control which began to be given serious consideration is the disposal of radioactive wastes. This was one of the subjects dealt with in a course for health physicists which was held under the auspices of the Government of Sweden, the United States Atomic Energy Commission and WHO (see page 117).

PROJECTS IN ENVIRONMENTAL SANITATION

Education and training

Training course for waterworks operators, Guatemala. A course to serve Mexico, Central America and Panama in which waterworks operators were trained in better methods of operating existing plants and maintaining plant equipment and in ways of improving water quality.

National training course in sanitary engineering, Lisbon. WHO contributed two lecturers to this course designed to give municipal and district engineers an understanding of the health implications of their work and basic information on the technical principles of modern design.

Insect control training course Rome. A second course (the first was in 1953) organized with the Istituto Superiore di Sanità on the control of insect vectors of disease. WHO provided fellowships for five participants from the African Region, two from the Eastern Mediterranean, and nine from Europe.

Sanitarians training course Cairo. A one year course sponsored by WHO and organized under the supervision of the Institute of Hygiene, Cairo, and of the Egyptian Ministry of Public Health, to provide training for auxiliary sanitarians for the countries of the Eastern Mediterranean Region that do not yet have their own training courses, and to staff rural health and sanitation programmes.

Seminar on Sanitary Engineering Puerto Rico (for countries of the Americas). WHO awarded short term fellowships for participants from Cuba, the Dominican Republic, Haiti, Mexico, and various territories of the Caribbean. It was the first seminar on this subject for countries of the Caribbean area.

Environmental Sanitation Seminar Ceylon. This seminar was attended by 34 participants from 11 countries of the South-East Asia and Western Pacific Regions. The chief topic was the sanitary disposal of sewage and human waste.

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EDUCATION AND TRAINING

WHO's programme in education and training included in 1955 as in previous years, assistance to training and educational institutions awarding fellowships and sponsoring or participating in international courses and seminars. Efforts were made to increase the effectiveness of the assistance given and to direct it more precisely to the particular purpose in view by detailed preliminary study of teaching institutions and by evaluation of the fellowships to determine how their selection and planning could be further improved. Means of raising the standard of general medical education received much attention and stress was laid on the teaching of social and preventive medicine.

The Organization's educational programme depends on and receives, the co-operation of teachers, scientists and institutions throughout the world. For example the training given to the 939 WHO fellows of 1955 is requiring the co-operation of hundreds of institutions in 74 countries and territories and more than 400 medical teachers have supplied data on medical education.

Fellowships

The following figures give a summary of fellowships awarded in 1955. They do not include participants who attended educational meetings at which there was no formal differentiation between teachers and students or those who received help with maintenance and travel costs to attend courses organized in their own country with the help of WHO.

During the twelve month period ending 30 November 1955 939 fellowships were awarded (754 men, 185 women) to nationals

of 108 countries and territories. Of these 667 (or 71%) were for studies in the region of origin. Three hundred and eleven fellowships (about 33%) were in connexion with group training programmes organized by WHO or with its assistance.

The chief subjects of study were control of communicable diseases (28% of the fellowships), environmental sanitation (13%), public health administration (12%), nursing (8%), maternal and child health (8%) and other specialized health services (20%). The remaining 11% were for studies in basic medical sciences, medical education and various aspects of clinical medicine.

The Organization began in 1953 to review and appraise its fellowships programme using follow-up and utilization reports on fellowships submitted two years after the return home of the fellow, interviewing former fellows, and preparing an evaluation note on each one of them in relation to a list of criteria. Three of the six regional offices made evaluation studies during 1955. In Europe a test analysis was made of 70 fellowships awarded in 1950 or earlier. A summary of the findings follows.

For four of the seventy the information available was insufficient for any conclusions. Of the sixty-six fellowships that could be assessed fifty-six are considered to have contributed to the local, regional or national health services, ten because of faulty selection or from failure to adjust after returning home seemed to have produced no measurable result. Fifty-two of the fellows now hold leading positions, forty-one of them as teachers in various branches of public health, in nursing or in clinical medicine. The kinds of contribution made by the fifty-six successful fellows were improvements in techniques or practices, the introduction of new methods or the reorganization of services. Ten of them led to the creation of new services or the undertaking of new work for which there had not previously been the necessary specialized staff.

Exchange of scientific information

Attention was focused on a continuing study of medical education in South East Asia. This study has already proved useful to some of the countries of the Region in formulating plans for improving medical education.

In December 1955 a visiting team of medical scientists comprising medical educators of six countries spent four weeks at the three medical schools of Egypt. The special purpose of the team was to assist the Government in adjusting medical education to take more account of the preventive and social aspects of medicine.

Assistance to educational institutions

The programme of assistance to educational institutions was concentrated on the provision of teaching personnel for medical colleges, schools of public health and institutes for the training of auxiliary personnel (see project list below). An idea of the expansion of this programme is afforded by

the following figures representing the "teaching" months of staff provided by WHO for schools and institutes: 1952 54 months, 1953 175 months, 1954 277 months and 1955 285 months. Among the other objectives of each teaching assignment is the training of an understudy to take over when the visiting instructor leaves; two years have arbitrarily been taken as the normal time required for this task, but there is considerable variation from place to place.

An effort is being made to help the institutions receiving assistance to develop in the way best suited to their own social environments and culture. This involves making preliminary surveys and drawing up long term plans. Two surveys were made in 1955—one in Afghanistan and the other in the Philippines.

In preparation for the second edition of the *World Directory of Medical Schools* the Organization undertook to compile descriptions of medical education in 83 countries—i.e. all those in which there is at least one medical school.

EDUCATION AND TRAINING PROJECTS

Seminars and conferences

Undergraduate education conference. India. The Rockefeller Foundation and WHO assisted the Government of India in organizing the First National Medical Education Conference. The Organization also sponsored the travel and maintenance of observers from Afghanistan, Burma, Ceylon, Indonesia and Thailand.

Seminar on teaching preventive medicine. Chile. A seminar for South American countries which provided for an exchange of ideas on the content of courses in preventive medicine, the methods of instruction and other relevant subjects.

Aid to medical education institutions

Assistance to medical and other education institutions, mostly in the form of teaching personnel, was given in the following countries: Afghanistan (University of Kabul), Burma (Medical College, Rangoon), Cambodia (Royal School of Medicine, Phnompenh), Fiji (Central Medical School), Indonesia (Faculty of Medicine, Gadjah Mada University, Jogjakarta and Semarang), Italy (Public Health Training School, Rome), Japan (Institute of Public Health, Tokyo), the Netherlands (Public Health Training Centre, Amsterdam and Leyden), Pakistan (Dow Medical College, Karachi), Philippines (medical schools of the Manila Central University, the Far Eastern University and the University of Santo Tomás and the Institute of Hygiene of the University of the Philippines, Manila), Singapore (University of Malaya), Turkey (School of Public Health, Ankara) and Yugoslavia (fellowships for members of medical faculties).

Americas A regional project was undertaken with WHO support, to strengthen schools of medicine and public health in Latin America by consultant services *interchange of professors* and visits by senior faculty members of the countries from which their students come

Pharmacology India Professors of pharmacology were provided for the School of Tropical Medicine in Calcutta and the Seth G. S. Medical College in Bombay

Physiotherapy India Aid was given in the establishment of a school at the K. E. M. Hospital Bombay

Preventive medicine Paraguay The teaching of preventive medicine was assisted through a department at the School of Medicine in Asunción

Paediatric education Americas A survey of paediatric education in Latin American countries was made

Veterinary medicine Americas A project was undertaken to strengthen the teaching of veterinary medicine in schools in the Region

Anaesthesiology Training of anaesthetists and operating room nurses was undertaken in Colombo Ceylon a WHO consultant aided in a three month project in training in anaesthesiology in Jordan and training courses for anaesthesiologists continued to be given in Copenhagen and in Paris with the Organization providing fellowships

Visiting team of medical scientists Egypt Under WHO auspices ten professors visited the universities of Cairo, Ein Shams and Alexandria worked in departments of the universities demonstrating modern techniques and developments and gave lectures in their specialties

Training of auxiliary personnel

National Institute of Health Guayaquil Ecuador The Organization assisted in the training of staff in general laboratory and bacteriological techniques

School for Male Nurse Sanitarians Kabul Afghanistan WHO provided a sanitarian and a nursing instructor for this school and some supplies and equipment

School for Health Assistants Rangoon Burma A specialist in medical education and a fellowship were contributed to a project for improving the training of paramedical personnel at this school

Refresher course for lady health visitors Rangoon Burma A three month course for health visitors particularly in administration and supervision in which WHO participated

Training of auxiliary health workers Gondar Ethiopia An extensive health project for which WHO has provided the services of an epidemiologist a sanitary engineer a public health nurse a maternal and child health officer and a nurse

Medical Assistants School Benghazi Libya A WHO appointed public health administrator will serve as school director

OTHER ACTIVITIES AND SERVICES

Peaceful uses of atomic energy

The interest of the Organization in the health implications of the peaceful uses of atomic energy greatly increased in 1955. A specialist was appointed to advise the Director General and to assist him in drawing up a programme of work in this field. In August WHO presented two papers at the International Conference on the Peaceful Uses of Atomic Energy convened by the United Nations.

By the end of the year, WHO had outlined a suggested programme of work the main features of which were

1. Training for three main categories of workers (a) specialists for protection work in atomic energy laboratories or plants (normally either physicians or "health physicists") (b) public health administrators who will have to deal with problems of radioactive waste disposal and protection of communities against radiation in connexion with the

increasing use of atomic energy in industry and (c) medical users of radio-isotopes

2 The collection and distribution of information on the health problems of atomic energy and on the medical uses of radio isotopes

3 The health problems involved in the pollution of the environment by radioactive materials and in the disposal of radioactive waste from factories laboratories and hospitals

4 Standardization There is considerable need for more agreement on standards in the health aspects of atomic energy In co-operation with organizations such as the International Commission on radiological Units WHO intends to work towards this end

5 Stimulation and co ordination of research work on the health aspects of radiation including the effects of radiation on human heredity There would also be problems connected with research into disease induced by radiation or the excessive absorption of radio-isotopes into the human body

In November the Organization in collaboration with the Government of Sweden and the Atomic Energy Commission of the United States of America sponsored the first international training course for health physicists It was attended by physicists and physicians specializing in radiation work from ten countries of Europe and covered such subjects as the general principles of health physics supervision at reactors and radio-chemical laboratories measuring and monitoring radiations precautions in factories and laboratory design and methods of waste disposal

Epidemiology and health statistics

By the end of the third year of operation of the International Sanitary Regulations on 1 October 1955 they had become "the

health charter of international travel throughout the greater part of the world" The Organization continued during the year to deal with difficulties in applying the Regulations and with infringements of them

An important task accomplished in 1955 was the amendment of the Regulations relating to yellow fever The relevant amendments which were adopted by the Eighth World Health Assembly will enter into force on 1 October 1956

Several inquiries and studies on quarantine matters were undertaken on a wide range of subjects including vaccination against yellow fever and cholera of infants less than one year old sanitary protection of international mass pilgrim movements responsibility for accidents occurring during deratting operations rodent infestation of ships preparation of a manual on the hygiene and sanitation of airports (see page 112) and responsibilities involved in the international control of yellow fever vaccines

With regard to epidemiological and statistical services retrospective data were published on plague smallpox tetanus dysentery and enteric fevers In addition specially collected data were issued on certain causes of death tuberculosis of the respiratory system multiple myeloma Hodgkins disease leukaemia epilepsy Parkinson's disease malignant neoplasms of the respiratory system diabetes vascular lesions affecting the central nervous system and diseases of the circulatory system A number of epidemiological studies were also published—on poliomyelitis trachoma, cholera population developments in connexion with public health in the Far East infant mortality and health indices

A Latin index of the *Manual of the International Statistical Classification of Diseases Injuries and Causes of Death* was issued for the benefit of those countries in central and northern Europe which commonly use Latin terminology in the description of disease

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as definitions nomenclature criteria of diagnosis collection of statistics training of workers and the dissemination of information It was proposed that the WHO method of international reference laboratories be extended to the collection of materials and histological sections from cancers

The English and French editions of Volume II of the first edition of the *Pharmacopoea Internationalis* were published in 1955 after integration of the comments received through the consultation of all Member States Work on the preparation of a supplement went forward as well as on the revision of the first edition and the preparation of the second edition

Work on selecting international non proprietary names for pharmaceutical preparations was continued Of the first 303 "proposed" names 219 were accepted as "recommended" names after opportunity had been given to those concerned to submit comments or objections A further list of 153 proposed international non proprietary names was prepared and forwarded to Member States in accordance with the revised procedure¹

¹For further information on procedure of these names, see *Ch. on. Wld. Hl. & Org.* 1956 10 26

During the year studies on the relationship between chemical analgesic and addiction producing properties of certain drugs were carried out and a number of substances were recommended for control under international agreements for the control of addiction producing drugs

In 1955 the Organization set up a new section on health laboratory methods the work of which was concentrated mainly on basic problems of laboratory work problems connected with food additives and standards for production of yellow fever vaccine Advice was given on public health laboratory equipment Studies were started on laboratory problems such as design and plans for a manual on public health laboratory methods were made

In September FAO and WHO convened a joint technical conference on the use of chemical additives in food It was recommended at this conference that uniform methods should be developed for evaluating the safety of food additives and general principles for their use formulated and that the two organizations should collect and disseminate pertinent information and assist as far as is acceptable and desirable in coordinating investigations to avoid duplication of research

PROJECTS IN LABORATORY SERVICES

Strengthening of laboratory services

National drug service, Brazil A project aiming to establish in Rio de Janeiro a national service for the control of chemical and biological standards and regulations to control the sale of domestic and imported drugs

Strengthening of laboratory services, Burma Public health laboratories will be set up in Rangoon and Mandalay technicians will be trained for the eight existing provincial laboratories and other laboratories to be established and provincial laboratory services will be integrated into a programme for expanding district health services WHO has provided the services of a microbiologist and some supplies and equipment for this project

Public health laboratory, Iran WHO has appointed a laboratory technician and furnished equipment to help establish a central public health laboratory and organize a public health laboratory service for the whole country

Laboratory biological facilities, Americas Two short term consultants and some equipment and supplies were provided in a regional project to improve facilities in public health laboratories of Latin America particularly as regards animal colonies and use of laboratory animals

The International Conference for the Seventh Decennial Revision of the International Lists of Diseases and Causes of Death was convened in Paris in February 1955. The report of the Conference which is to be submitted to the Ninth World Health

Assembly, contains recommendations on ways of obtaining information on causes of death and illness in areas with limited medical and health facilities and minor changes in the Classification for which a fresh edition of the *Manual* is being prepared.

PROJECTS IN EPIDEMIOLOGY AND HEALTH STATISTICS

Quarantine

Seminar on the Application of the International Sanitary Regulations. Costa Rica. A consultant fellowship, and some supplies and equipment were provided for this regional seminar for the Americas.

Quarantine station. Jeddah. Saudi Arabia. The establishment of a quarantine station for pilgrims to Mecca and other travellers was completed in September 1955. The Organization's aid during the year consisted of the services of a senior quarantine officer.

Survey of quarantine system. Lebanon. A WHO consultant studied the quarantine services of Lebanon and made recommendations to bring them into line with the requirements of the International Sanitary Regulations.

Health statistics

WHO aid was given in projects to improve vital and health statistical services in Burma, Indonesia, and Yugoslavia.

Morbidity survey. Denmark. A detailed national survey of morbidity from which a survey pattern of international interest might be developed has been made over a three year period with help from WHO and the Rockefeller Foundation.

Conference of rapporteurs of the different federal states of Germany. A WHO consultant participated in discussions of various problems of health statistics and health office reports.

Americas regional projects. (1) Inter American Centre of Biostatistics. Santiago, Chile—a training project for technical personnel for Latin American countries with the Chilean Government offices concerned with vital and health statistics being developed to serve as model offices for demonstration purposes. (2) health statistician—the WHO statistician assigned to help improve vital and health statistics in the Americas gave advice and aided with teaching in Cuba, the Dominican Republic, El Salvador, Guatemala, Haiti, Nicaragua, and Panama. (3) Latin American Centre for Classification of Diseases. Caracas, Venezuela—a centre designed to serve Spanish speaking countries of the Americas and acting as a training centre and clearing house for problems arising in the application of the Spanish edition of the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*.

Therapeutic substances, standardization, and health laboratory methods.

The Organization continued its work under the heading of biological standardization which includes (a) the establishment, maintenance, distribution and replacement of International Biological Standards; (b) the preparation and distribution of standard materials for the identification of *Salmonella* and *Shigella* micro organisms

(c) the preparation and distribution of standard materials for the typing of blood groups and (d) standardization of the histopathological diagnosis of cancer.

With regard to the last of the above functions (d) a small consultant group was convened by WHO to consider what work the Organization might undertake in the field of cancer. This group made several recommendations concerning such matters

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Vaccines and sera

Vaccine production Afghanistan A laboratory specialist is assisting in reorganizing expanding and improving facilities for vaccine production in Kabul

Sera and vaccine production Austria Through a fellowship the Organization helped in a project to improve and increase production of sera and vaccines for the protection of children

Vaccine testing Americas A grant was made to the Michigan Department of Health Laboratories to help new laboratories for production of vaccines in the Americas maintain the necessary high standards of potency and safety

Inter regional projects

Standardization of virus and rickettsial tests Work is under way to simplify and make more accurate screening procedures to be used in public health laboratory tests for various virus and rickettsial diseases Laboratories of many countries are collaborating in this work

WHO Reference Laboratories Copenhagen Denmark and Chamblee Ga USA These laboratories test antigens and sera examine reference preparations study serological methods and train personnel

International Shigella Centres United Kingdom and USA These centres one at the Communicable Disease Center Atlanta Ga and the other at the Central Public Health Laboratory London collect and identify *Shigella* strains distribute strains and sera to national centres and train workers from national centres

International Salmonella and Escherichia Centre Denmark This centre at the Statens Seruminstitut Copenhagen has functions with regard to *Salmonella* and *Escherichia* strains similar to those which the International Shigella Centres exercise with regard to *Shigella* strains



CHRONICLE OF THE WORLD HEALTH ORGANIZATION

CONTENTS

	Page
<i>Developments in serological methods in syphilis</i>	123
WHO/UNICFF assisted BCG vaccination programmes 1951-54	126
BCG vaccination in Pakistan	134
The work of the Institute of Nutrition of Central America and Panama	137
Epidemiological and Statistical Information	
Mortality from accidents (other than transport accidents)	138
Reports of Expert Groups	
Drugs liable to produce addiction	144
Notes and News	
Associate Membership of WHO requested for Gold Coast, Nigeria, and Sierra Leone	145
Proposed trachoma control in Iraq	145
Appointment of a consultant on trachoma for India and Indonesia	145
Seminar on tuberculosis survey methods	145
Emergency shipment of iron lungs to Argentina	146
Epidemiological study of yaws in Java	146
Appointment of a USSR specialist	146
A New Zealand nurse-educator in Tarzan	146
Experts visit the new quarantine station at Jeddah	147
Appointment of a dental health consultant for the Philippines	147
Creation of the first school of nursing in Libya	147
Opening of a school for health assistants in Nepal	147
Opening of a physiotherapy school in Pakistan	148
Seventh Seminar on World Health	148
New contribution to the special account for the eradication of malaria	148
Publication of the proceedings of the Geneva conference on atomic energy	148
Review of WHO Publications	149

SCHEDULE OF MEETINGS

26 April 3 May	Expert Committee on the International Pharmacopoeia, fourteenth session Geneva
4-5 May	WHO/UNICEF Joint Committee on Health Policy, Geneva
8-26 May	Ninth World Health Assembly, Geneva
28 May 2 June	Executive Board, eighteenth session Geneva
4-8 June	Advisory Group on Prevention of Accidents in Childhood, Geneva
5-14 June	PASB/AMRO Executive Committee twenty-eighth session Washington D C
6-13 June	Study Group on the Toxic Hazards of Pesticides to Man Geneva
11-16 June	Study Group on International Standards of Drinking Water, Geneva
11-19 June	Inter Regional Conference on Malaria for the Eastern Mediterranean and European Regions, Athens
12-26 June	European Conference on Post Basic Nursing Education Peebles Scotland
18-23 June	Expert Committee on Organization of Medical Care Geneva
21-29 June	Expert Committee on Malaria sixth session, Athens
25-30 June	Joint FAO/WHO Expert Committee on Milk Hygiene Geneva

The mention of manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature which are not mentioned. Proprietary names of such products are distinguished by initial capital letters.

DEVELOPMENTS IN SEROLOGICAL METHODS IN SYPHILIS

The success of penicillin treatment of the treponematoses is frequently quoted as one of the most spectacular of modern achievements in public health. In fact its success has momentarily overshadowed other developments particularly those in laboratory techniques.

Nevertheless the efficacy and reliability of the routine serological tests for the titration of reagins remains one of the essential conditions of success whether it be in the detection of cases in the determination of the results of treatment in outpatient clinics and private practice or in the assessment of the results of campaigns among large population groups.

Progress has been made in recent years on several fronts. Purer and better defined antigen components such as cardiolipin and lecithin have been produced; other antigen preparations such as sitolipin, vegetable extracts and synthetic phospholipids have been tried out; new tests utilizing antigens in the treponemes themselves have been developed (immobilization agglutination, immune adherence and complement fixation tests). These tests have thrown new light on the biology of the treponeme and on the immunology of the diseases it causes and make it possible to come to closer grips with the problem of false positive reactions which today seem to occur with greater frequency while true reactions are becoming rarer as a result of penicillin treatment.

Role of WHO

Since 1949 WHO has been taking a direct interest in the development of research by

co-ordinating research undertaken in various parts of the world studying the practical application of the laboratory results, and establishing international standards and reference preparations. In these fields WHO has obtained the co-operation of some of the world's principal serological laboratories such as the Statens Seruminstitut in Copenhagen and the Venereal Disease Research Laboratory of the US Public Health Service (VDRL)—both of which have acted as international serological reference centres in the WHO programme—the Division of Laboratories and Research of the New York State Department of Health and the International Treponematoses Laboratory Center, Johns Hopkins University, Baltimore, Md. It also receives technical advice from a number of expert committees and sub-committees.

As a result of these joint efforts serological laboratories the world over can now obtain, for the standardization of their working antigens, international reference preparations of cardiolipin and lecithin whose specifications are given in an annex to Volume II of the International Pharmacopoeia. WHO has also published a monograph on these antigen components.¹

A certain number of freeze-dried sera have been prepared in co-operation with 18 laboratories under the auspices of the Subcommittee on Serology and Laboratory Aspects of the Expert Committee on Venereal Infections and Treponematoses. In 1957 these sera will be ready for a comparative study in a limited number of laboratories in different

¹ Pangborn, M. C. & al. (1955) *Cardiolipin antigens: preparation and chemical and serological control*, Geneva (World Health Organization Monograph Series No. 6).

parts of the world. An attempt is also being made to obtain sera—prepared by mixing several samples—which can serve as international reference preparations in methods for the serodiagnosis of syphilis.

The WHO International Serological Reference Laboratory at Copenhagen is also in constant touch with 48 national laboratories co-operating in studies of the TPI test.

The International Treponematoses Laboratory Center receives biological material from the various countries to which WHO gives technical assistance. It collects isolates, and maintains strains of pathogenic treponemes from many parts of the world so that investigators may have interesting material constantly at their disposal to enable them to continue research on the fundamental problems of the serology of the treponematoses. Little by little light is being thrown on the real nature of these infections which have a pattern similar to that of other infectious processes for which laboratory methods already exist.

It seemed advisable at the present stage of development in serological techniques to collect in a special number of the *Bulletin of the World Health Organization*² devoted exclusively to the subject, the opinions, views, and conclusions of some of the most eminent serologists who are carrying out and directing research in several of the world's principal serological laboratories. We give below a brief summary of some of the subjects dealt with and an indication of the general trends.³

Collaboration between the clinician and serologist

Several authors insist on the necessity for close co-operation between the clinician and the serologist. The serologist must be

informed with regard to the clinical symptoms relating to the sera he is to test, and the clinician must know exactly what type of test is applied, the technique adopted, the precise nature of the antigen used together with its concentration and proportions. It is not sufficient to indicate "cardiolipin test" or "cardiolipin antigen". The clinician must also know the relative sensitivity and specificity of the tests carried out at various stages of the disease if he is to interpret satisfactorily the results he receives from the serologist. There are many reasons for the difficulties in interpretation including lack of uniformity and inadequate recording of results. Reporting findings as "positive" or "negative" tends to suggest a diagnosis indicating the presence or absence of syphilis, and it would be preferable to replace these terms by "reactive" and "non-reactive", respectively. At a time when quantitative tests are becoming more and more important for determining the results of treatment the 'unit' system of recording findings may also lead to confusion as the unit has different values in the different tests. It would seem preferable therefore to express the titration in 'dils' (dilution reactivity end points).

There may be discrepancies in serological results if several tests are used—and particularly with a battery of tests, in some cases the results may not tally with the clinical diagnosis. This disagreement may be caused by factors within the patient himself, who may have undergone some physiological change between the taking of blood samples by deterioration of the sample in transit by unsuitable laboratory temperatures or by the results being read at various hours of the day in different lights. When samples are sent by post and pass through various climates, as is the case at the present time with the sera exchanged between laboratories in various parts of the world, suitable precautions against haemolysis and contamination must be taken in drawing and shipping samples.

² *Bull. World Health Org.* 1956, 14, p. 187-352.

(See page 149 of this number of the *Chronicle* for titles of articles and names of authors.)

(use of venules addition of suitable preservative etc)

In the view of some authors the choice of tests should be made on a regional basis according to results obtained with individuals of the region. The proportion of false positive reactions varies considerably according to the most prevalent diseases in a region. Endemic malaria for example provokes a high rate of false positive reactions some tests will exaggerate these reactions while with others they will be maintained within more or less reasonable limits. Regional assessments of tests have already been made—in 1928 in Copenhagen in 1930 in Montevideo and in 1941 in Washington D C. A very careful description should be made of the most suitable tests for each region so that laboratories using the same tests will also adopt identical techniques. The manual of serological tests for syphilis published by the United States Public Health Service Washington D C 1955 is extremely useful in this respect.

False positive reactions

False positive reactions to serological tests for the treponematoses raise a number of theoretical and practical problems and are receiving more and more attention from syphilologists. Certain diseases are among the causative factors of these reactions. Some of these diseases—bacterial viral and rickettsial infections—give “acute” biologically false positive reactions which last almost as long as the cause which provokes them. Others give “chronic” false positive reactions which may persist for years or even for a lifetime. They represent latent or slowly evolving pathological conditions such as the “collagen” diseases. Chronic false positive reactions may reveal a morbid condition some years before the appearance of any clinical symptom as with lupus erythematosus for example. Leprosy is one of the diseases which

cause the most false positive reactions it has been observed that the proportion of these reactions in a given group of leprosy sera has varied according to the test used between about 3% with a slide modification of the Meinicke test and about 80% with the Kahn test.

Treponemal antigens

The *Treponema pallidum* immobilization (TPI) test, employing the living treponeme itself was introduced into serological practice some years ago. It makes it possible at the present time to overcome certain diagnostic difficulties which defy other methods and it facilitates recognition of false positive reactions. However this test is rather slow complicated and costly and cannot be used as a routine test or treatment indicator but it does serve as a qualitative diagnostic test. It is particularly useful for the diagnosis of false positive reactions in persons with no syphilitic symptoms or history but who give positive reactions to all the usual tests (as pregnant women and blood donors for example) and in patients who sometimes give positive and sometimes negative reactions to the usual tests particularly after cardiac nervous or mental disease. Efforts have been made to simplify the TPI test technique by using the immune adherence phenomenon (TPIA test) the method of agglutination of the killed treponema (TPA test) or other similar methods. Unfortunately these efforts have not solved the problem the technical difficulties have not been overcome and the immunological interpretation is by no means clear.

In fact in work on the TPA and TPIA tests, electrophoresis of rabbit serum has shown that the treponema agglutinating properties of the sera appear to be distributed over several of the serum globulin fractions. The reagin and immobilizing antibodies do not appear to be the only ones involved in the agglutination

reactions and this discovery has opened a new horizon. It has directed study towards the chemical fractionation of the treponeme and the use in serological tests, of specifically agglutinable fractions. This is an entirely new field of research in which work is only beginning.

There is no doubt that the serological study of the treponematoses has reached a phase of definite evolution. It is probable that the future will provide more sensitive, more specific and less costly methods as a result of the basic research which is being carried out on the biology of these diseases. In a new monograph to be published by

WHO⁴ on this subject the authors Turner & Hollander, describe the latest developments in the biological study of the pathogenic treponemes and give an account of *in vitro* study of the treponeme, of the antigenic relationship between various strains of treponemes, of the role of the antibiotics in experimental treponematoses of the factors influencing the reaction of the host of the infection, etc.—in short, all the factors which may affect the immunology of the treponematoses and extend our knowledge of the nature of these diseases.

Turner T.B. & Hollander D.H. (1956) *Biology of the treponematoses*. Geneva (World Health Organization Monograph series) — In preparation.

WHO/UNICEF-ASSISTED BCG VACCINATION PROGRAMMES, 1951-54*

In 1951 WHO and UNICEF assumed responsibility for international assistance to mass BCG vaccination programmes previously rendered by the International Tuberculosis Campaign (ITC). Details about these programmes, as well as a statistical documentation of the work carried out up to December 1953 have been published previously¹. The present report brings the statistics forward to December 1954.

From July 1951 to the end of 1953 43 million people were tuberculin tested and 16 million vaccinated. During 1954 these numbers were almost doubled: the totals by the end of the year being 80 million and 29 million respectively². Thus, during 1954 37 million people were tested and 13 million were vaccinated at an average of 3 million tests and

1 million vaccinations per month. The progress of the programme month by month is shown in Fig. 1. Since July 1951 the monthly output of tests and vaccinations has steadily increased, until, in December 1954, 4.4 million people were tested and 1.6 million vaccinated.

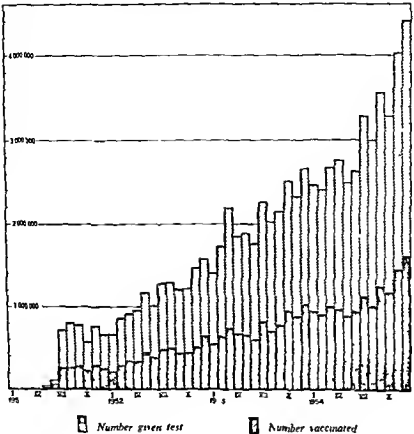
The 33 countries where WHO/UNICEF assisted campaigns are, or have been conducted are listed in Table I. By far the largest part of the programme has taken place in Asia where by the end of 1954 campaigns had been completed in 5 countries and were still running in 14 countries. In two of the countries, India and Pakistan, campaigns were started by the ITC in 1949 and taken over by WHO/UNICEF in 1951, since 1951 51 million people have been tested and 17 million vaccinated in the two countries. WHO/UNICEF launched campaigns in 15 other countries of Asia during 1951-53 and in one country, Viet Nam, in 1954. In Ceylon a BCG campaign was

* Material included in this report was compiled from monthly statistical tabulations sent to the WHO Tuberculosis Research Office from the various campaign headquarters. The data were analysed and the report prepared by Erik F. Erslev.

¹ Bull. Wild Dis. Org. 1955, 12, 301.

² During the first nine months of 1955 an additional 33 million tests and 12 million vaccinations were given (provisional figures).

FIG 1 NUMBER OF PERSONS TUBERCULIN TESTED AND VACCINATED WITH BCG IN WHO/UNICEF ASSISTED CAMPAIGNS BY MONTH 1951-54



started by the ITC in 1949 and taken over by the Government in 1951 WHO/UNICEF have given support to the campaign from May 1954 In Asia excluding India and Pakistan 23 million people had been tested and 10 million vaccinated by the end of 1954 On the African continent BCG campaigns so far have been carried out only in a few countries The ITC started a campaign in Egypt in 1949 which was taken over by WHO/UNICEF in 1951 and by the Government at the end of 1952 In Ethiopia and Eritrea and in Libya campaigns were launched by

WHO/UNICEF in 1953 these were still running at the end of 1954 In the Sudan a special tuberculin survey was carried out during the period April 1954-March 1955 in the course of this survey 65 162 tests and 26 602 vaccinations were given Its aim was to determine whether there was a need for a mass BCG campaign in the Sudan and, if so how it should best be carried out By the end of 1954 WHO/UNICEF had assisted in the testing of 3 million persons and vaccination of 1 million in the African countries

TABLE 1 NUMBER OF PERSONS TUBERCULIN TESTED AND VACCINATED WITH BCG AND PERCENTAGE POSITIVE IN AGE GROUP 7-14 YEARS BY COUNTRY 1951-54

Country	Campaign period	Number of persons				Percentage positive in age-group 7-14 years
		given test	with test read		vaccinated	
			total	negative		
Africa						
Egypt ^a	July 1951 Dec 1952	2 269 290	1 476 205	653 977	649 428	33 ^b
Ethiopia & Eritrea	May 1953	353 484	251 953	145 278	144 877	33
Libya	Feb 1953	272 392	199 356	111 765	111 244	36
Sudan	April 1954	44 422	38 399	19 149	19 039	36
America						
British Guiana	March 1954	177 799	164 402	96 449	96 378	34
British Honduras	Sept 1953 April 1954	48 598	46 103	23 215	23 111	30
Colombia	Sept 1954	625 392	559 151	345 171	343 931	24
Costa Rica	March 1952 July 1954	262 708	248 250	197 907	195 116	13
El Salvador	Aug 1951 Nov 1952	348 753	311 959	182 709	179 323 ^c	24
Jamaica	Oct 1951 July 1953	635 421	586 014	349 074	347 660	19
Leeward Islands St Kitts ^d	Nov 1953 Jan 1954	24 366	23 432	8 610	8 610	
Paraguay	Aug 1954	142 568	122 776	70 133	68 844	31
Trinidad and Tobago	April 1952 May 1954	337 648	321 095	212 215	211 923	24
Windward Islands Grenada	Jan April 1954	60 471	58 369	39 772	39 579	16
Asia						
Aden Colony	Feb May 1952	31 287	22 110	7 765	7 751	53
Brunei	Sept 1952 Dec 1953	33 076	27 427	10 022	10 203 ^e	48
Burma	Dec 1951	2 866 780	2 264 679	873 386	865 967 ^e	50
Ceylon ^a	May 1954	395 787	343 477	183 877	179 801	4
China Taiwan	May 1951	3 600 260	3 161 070	2 115 864	2 112 265 ^e	36
Hong Kong	April 1952	357 827	306 770	80 769	91 483 ^e	76
India ^a	July 1951	40 669 379	31 438 593	13 355 913	13 219 467 ^e	
Part A States						
Andhra	Oct 1954	146 635	107 636	45 992	45 774	
Assam	July 1951	995 66	841 301	476 362	473 461	

TABLE 1 NUMBER OF PERSONS TUBERCULIN TESTED AND VACCINATED WITH BCG AND PERCENTAGE POSITIVE IN AGE GROUP 7-14 YEARS BY COUNTRY 1951-54 (continued)

Country	Campaign period	Number of persons				Percentage positive in age-group 7-14 years
		given test	with test result		vaccinated	
			total	negative		
Bihar	July 1951	4 114 289	3 756 984	1 937 304	1 932 645	
Bombay	July 1951	2 309 850	1 934 233	505 437	516 190	
Madhya Pradesh	July 1951	1 572 774	1 435 291	551 212	543 892	
Madras	July 1951	99 859	4 550	222 083	214 485	
Orissa	July 1951	1 241 391	959 528	400 259	375 330	
Punjab	July 1951	4 407 706	2 990 116	1 246 551	1 237 500	
Uttar Pradesh	July 1951	4 574 551	3 462 231	1 284 256	1 267 835	
West Bengal	July 1951	3 279 341	3 011 161	1 307 637	1 282 507	
Part B States						
Hyderabad	July 1951	3 737 441	2 899 378	1 003 713	968 556	
Kashmir	July 1951	904 431	701 563	31 656	318 815	
Madhya Bharat	July 1951	1 807 133	1 202 601	507 622	501 879	
Mysore	July 1951	1 690 614	1 193 927	687 072	681 154	
Nagaland and East Punjab States Union	July 1951	1 261 406	1 193 233	560 578	555 418	
Pakistan	July 1951	1 438 125	1 003 662	330 502	330 646	
Saurashtra	July 1951	937 791	646 123	255 269	248 505	
Tamil Nadu and Cochin	July 1951	1 947 231	1 652 762	818 796	815 963	
Part C States						
Ajmer	April 1952	306 958	222 551	68 998	65 760	
Bihar	April 1952	276 300	223 060	108 138	106 620	
Cooch Bihar	Nov 1953	21 463	18 696	14 481	14 451	
Delhi	July 1951	1 161 847	774 155	258 017	255 568	
Himachal Pradesh	March 1952	276 914	194 096	126 706	125 756	
Kutch	Sept 1951	13 530	10 983	5 168	4 845	
Mizoram	April 1952	245 623	216 885	137 691	130 165	
Tripura	Nov 1952	1 14 434	122 046	43 710	45 638	
Vindhya Pradesh	July 1951	254 140	199 793	111 368	110 473	
Indonesia	Nov 1952	2 029 531	1 528 197	337 066	335 037	63
Iran	May 1952	984 629	831 302	640 432	636 650	21
Iraq	Aug 1952	565 105	463 237	206 725	204 110	49

TABLE I NUMBER OF PERSONS TUBERCULIN TESTED AND VACCINATED WITH BCG AND PERCENTAGE POSITIVE IN AGE GROUP 7-14 YEARS BY COUNTRY 1951-54 (concluded)

Country	Campaign period	Number of persons				Percent. positive in age-group 7-14 years
		Given test	with test read		vaccinated	
			total	negative		
Jordan ^d	Dec 1953	255 236	220 141	132 283	130 900	^d
Malaya	Jan 1951 Dec 1953	658 521	616 947	328 357	359 341 ^e	43
Pakistan ^a	July 1951	11 142 880	8 211 394	3 835 952	3 878 535	40 ^a
Karachi	July 1951	173 235	116 505	27 081	23 670	51 ^b
East Bengal	July 1951	2 070 073	1 717 603	744 183	710 668	41 ^b
Punjab	July 1951	6 747 775	3 877 539	1 830 795	1 817 707	41 ^b
Bahawalpur	July 1951	463 116	265 063	163 164	161 712	78 ^b
N W Frontier Province	July 1951	1 431 458	1 153 077	586 574	386 154	40 ^b
N W Frontier Tribal Area	July 1951	8 070	7 248	3 176	2 947	
Sind	Jan 1953	658 155	559 238	219 511	217 037	57 ^b
Khapur	April 1952	44 634	37 131	23 964	23 893	31 ^b
Baluchistan Districts	July 1952	218 635	195 447	118 671	117 976	34 ^c
Azad Kashmir	May 1953	377 778	222 553	168 333	168 811	30 ^b
Philippines ^a	Oct 1951	4 614 731	4 036 298	2 127 863	2 147 912	44 ^e
Sarawak	July 1952 Dec 1953	154 551	129 303	57 743	58 594 ^e	45
Singapore	June 1951 Dec 1953	95 104	89 556	35 506	36 592 ^e	61
Thailand ^e	Nov 1951	2 458 416	1 950 277	968 673	966 181	35 ^e
Turkey ^d	Jan 1953	3 800 948	3 477 834	1 608 725	1 599 778	^d
Viet Nam	March 1954	207 766	176 569	72 354	71 479	3
Total		80 409 695	63 767 485	29 544 200	29 361 278	

^a = not applicable

^b = / not given because of too few observations

^c = data not available

^a Before July 1951 the following work was carried out by the International Tuberculosis Campaign: Egypt 2 104 311 tests given 661 128 vaccinations; Ceylon 305 707 tests given 122 764 vaccinations; India 4 129 570 tests given 1 372 029 vaccinations; Pakistan 823 342 tests given 294 559 vaccinations; On Ceylon furthermore 877 516 persons were tested and 418 851 vaccinated under Government auspices between July 1951 and May 1954. The figures for the Philippines include 305 801 tests and 121 149 vaccinations given in tuberculosis and maternity clinics between April 1948 and December 1954.

^b Based on results from the total campaign including the ITC programme

^c Including the following number of newborn children vaccinated without previous testing: El Salvador 248; Brunel 291; Burma 1 787; China (Taiwan) 109 46; Hong Kong 11 072; India 478; Malaya 32 757; Sarawak 1479; Singapore 1 616.

^d The data include testing and vaccination of some persons already tested and vaccinated in a local BCG vaccination campaign (St Kitts, Turkey) or by ITC (Jordan) before the WHO/UNICEF assisted campaign. The percentage of reactors therefore cannot be taken as an index of naturally acquired tuberculin sensitivity.

^e The data include testing and vaccination of some persons already tested and vaccinated earlier in the WHO/UNICEF assisted campaign. The percentage of reactor has been calculated on the basis of limited material excluding the data for return visits.

The WHO/UNICEF assisted campaigns in America have with a single exception (Paraguay) been limited to countries in Central America the Caribbean area and the northern part of South America. Campaigns were completed in El Salvador and Jamaica in 1952-53 and in British Honduras, Costa Rica, St. Kitts, Grenada and Trinidad and Tobago in 1954. New campaigns were started in 1954 in British Guiana, Colombia and Paraguay. By the end of 1954 a total of 2.7 million tests and 1.5 million vaccinations had been given in the American BCG campaigns.

Out of the 80.4 million persons given a tuberculin test only 63.8 million returned for the reading of the test (see Table I). Thus 16.6 million or 21% were lost to the campaign. The percentage varies considerably among the different countries for the American countries the average loss was 8% for India and Pakistan 23% for the other Asian countries 16% and for the African countries as much as 33% (for the Sudan however only 14%). On the other hand practically all (99.4%) of the 29.5 million persons found tuberculin negative were vaccinated.

The proportion of reactors to the tuberculin test expressed as a percentage of the total number of persons completing the test gives some indication of the prevalence of tuberculous infection. Such percentages should be interpreted with caution however. Results from tuberculin surveys conducted with uniform techniques in different parts of the world³ indicate that there are two kinds of naturally acquired tuberculin sensitivity: a high grade sensitivity due to tuberculous infection which is found everywhere and a low grade non specific sensitivity which is highly prevalent in some countries and absent in others. As the largest non specific reactions to the tuberculin test cannot be distinguished

from the smallest specific reactions the percentages of tuberculin reactors for some countries will include a certain proportion of persons with strong non specific reactions and will thus over-estimate the prevalence of tuberculous infection.

Table I gives the percentages of tuberculin reactors for the age group 7-14 years for individual countries.⁴ The percentages are comparatively low in the American countries ranging from 13% for Costa Rica to 34% for British Guiana. In Africa the percentages are somewhat higher but still moderate 33% to 36%. The percentages for the Asian countries are generally high but vary widely from 21% for Iran to 76% for Hong Kong. Most of the percentages fall within the range 30% to 65%. For Pakistan percentages are given by administrative division they show considerable variation ranging from 28% for Bahawalpur to 52% for Sind.

For the five countries where the campaigns were completed during 1954 all situated in Central America or the Caribbean area more detailed statistics are given in Tables II (by administrative division) and III (by age). In the previous report³ similar statistics were given for the campaigns completed during 1952 and 1953. The percentages of positive reactors (Table II) vary widely from one part to another within these countries. In the two Central American countries British Honduras and Costa Rica high percentages are found in the coastal areas (Belize and Stann Creek in British Honduras, Puntarenas, Guanacaste and Limon in Costa Rica) and low percentages in the interior. A similar though less distinct trend is found in El Salvador. The percentages for urban areas are comparatively high in Costa Rica (San Jose), El Salvador (San Salvador)*

* The distribution for the tested persons was not valid for India and for St. Kitts, Jordan and Turkey. The percentages were too low to be naturally acquired tuberculin sensitivity because the natural loss of sensitivity and vaccination of persons already tested and vaccinated in other campaigns.

B. R. Wild H. H. A. Org. 1955 12, 307-309
B. R. Wild H. H. A. Org. 1955 12, 307

**TABLE II NUMBER OF PERSONS TUBERCULIN TESTED AND VACCINATED WITH BCG
COVERAGE OF AGE GROUP 0-14 YEARS AND PERCENTAGE POSITIVE IN AGE GROUP 7-14 YEARS
BY CIVIL DIVISION IN CAMPAIGNS COMPLETED DURING 1954**

Country and division	Number of persons				Coverage ^a of age group 0-14 years (%)	Percentage positive in age-group 7-14 years
	given test	with test read		vaccinated		
		total	negative			
British Honduras	48 598	46 103	23 215	23 111	75	30
Districts						
Belize	22 876	21 929	9 901	9 852	75	37
Northern	10 443	9 972	5 885	5 861	85	19
Cayo	5 750	5 460	3 488	3 483	79	17
Stann Creek	6 276	5 940	2 363	2 340	80	39
Toledo	3 253	2 802	1 578	1 575	49	24
Costa Rica	262 728	248 250	197 907	195 116	44	13
Provinces						
San José Canton Central	50 537	46 486	31 709	31 325	65	22
San José Other cantons	51 432	49 015	42 857	42 252	45	9
Alajuela	41 793	40 505	35 652	35 241	39	7
Cartago	35 445	34 128	29 350	29 043	51	6
Heredia	19 251	18 504	16 542	16 262	55	6
Puntarenas	32 127	30 212	19 230	18 845	40	25
Guanacaste	17 605	16 836	13 784	13 539	31	18
Limón	14 348	12 564	8 783	8 609	43	24
Leeward Islands St Kitts	24 366	23 432	8 610	8 610	63	6
Trinidad and Tobago	337 648	321 075	212 215	211 973	78	24
Cities and Towns						
Port of Spain	64 221	61 195	39 470	39 333	77	21
San Fernando	19 365	18 768	12 165	12 149	81	25
Arima	5 149	4 916	3 328	3 328	68	21
Counties						
St George	72 754	68 800	47 664	47 98	68	18
Caroni	34 502	32 273	21 034	21 022	77	29
Victoria	57 512	55 157	35 833	35 865	89	23
St Patrick	45 702	43 506	28 504	28 430	90	25
St David	2 350	2 274	1 525	1 574	63	29
St Andrew	12 473	11 675	7 900	7 893	71	25
Nariva	5 348	5 015	3 503	3 03	64	25
Mayaro	2 071	1 896	1 199	1 198	67	31
Island of Tobago	16 251	15 540	10 030	10 030	83	25
Windward Islands Grenada	60 471	58 369	39 772	39 579	78	16
Parishes						
St George's	18 107	17 435	10 979	10 977	78	17
St John's	7 824	7 441	4 665	4 560	96	18
St Mark's	1 626	1 574	1 126	1 176	44	14
St Patrick's	6 068	5 999	4 394	4 391	63	13
St Andrew's	15 661	15 503	11 529	11 529	89	12
St David's	5 784	5 444	4 147	4 064	73	8
Cornacou	5 201	4 973	2 697	2 992	62	35

^a Coverage is defined as number of tests read as a percentage of the general population in the same age-group. The general population 0-14 years of age is estimated by applying the age distribution for the entire country to the population figures for each subdivision at latest census and raising the resulting estimates by the percentage increase of the total population from the census to mid 1953. The data are obtained primarily from the United Nations Demographic Yearbooks.

^b See Table I footnote (d). The percentage of positives found in the local BCG vaccination campaign conducted December 1952-May 1953 was 22.

TABLE III NUMBER OF PERSONS TUBERCULIN TESTED AND VACCINATED WITH BCG BY AGE IN CAMPAIGNS COMPLETED DURING 1954

Country	Number of persons with test read				Number of persons vaccinated			
	Age-groups (years)			Total	Age-groups (years)			Total
	0-6	7-14	15 and over		0-6	7-14	15 and over	
British Honduras	10 575	11 053	24 475	46 103	9 705	7 723	5 683	23 111
Costa Rica	87 779	104 597	20 474	248 250	58 455	90 206	46 435	195 116
Leeward Islands, St. Kitts	4 610	5 172	13 650	23 432	3 998	1 812	2 800	8 610
Trinidad and Tobago	84 435	111 122	125 468	321 025	79 155	84 597	43 171	211 923
Windward Islands, Grenada	12 584	14 902	30 833	58 319	12 041	12 372	15 166	39 579
Total number	174 983	247 246	274 950	697 179	163 354	196 710	118 275	478 339
Total %	25	35	41	100	34	41	25	100

and Jamaica (Kingston) but not in Trinidad and Tobago (Port of Spain)

The proportion of the child population (0-14 years) that participated in the campaigns is also shown in Table II (the "coverage"). The figures have been computed by relating the number of children with test read to the total number of children in the general population in the same age group. While the coverage was relatively low in Costa Rica (44%) as many as 75 / 83 / of the children participated in the campaigns in the other countries. The coverage varies markedly from district to district within the countries.

The age-distribution of the population tested in the five countries (Table III) shows that on the average 25 / were under 7 years

of age 35% were 7-14 years old and 40% were 15 years or more. The corresponding figures for the individual countries show much variation however. Thus the persons tested in Costa Rica were relatively young only 32% being 15 years or more while those in St. Kitts were rather old with 58% above the age mentioned. The vaccinated population was generally younger than the tested population since a relatively large proportion of the older persons were reactors to the tuberculin test and thus not eligible for vaccination. On the average 34% of the vaccinated population were under 7 years of age 41% were 7-14 years old and 25% were 15 years or more.

Japanese Translation of the International Pharmacopoeia

A Japanese translation of Volume I of the International Pharmacopoeia was published in 1955 by the Nippon Shinyaku Co. Ltd. of Kyoto. The translation is by Dr. Kuchiro Kakemi, member of the Board of the Japanese Pharmacopoeia, and has been supervised by Dr. Taisuo Kanyone, Member of the WHO Expert Advisory Panel on the International Pharmacopoeia and Pharmaceutical Preparations. The World Health Organization published the English and French editions of this volume in 1951 and the Spanish edition in 1954.

BCG VACCINATION IN PAKISTAN *

In August 1949 the Government of Pakistan, with the assistance of the International Tuberculosis Campaign (ITC), started to carry out a professional training and demonstration project with the aim of familiarizing Pakistani doctors and nurses with the technique of BCG vaccination. This project, which was to last for one year, gradually developed into a vaccination campaign covering the whole country including both the rural and urban population. The international team arrived in Pakistan towards the end of July 1949 vaccination centres were opened shortly afterwards in Karachi and then in refugee camps. In November 1949, several members of the international team went to Dacca in East Pakistan, to train two provincial teams of vaccinators there. Later on these two teams continued the demonstration work alone in the urban areas of the province. At the end of 1950 the programme was being applied in all the provinces of the country and was favourably received everywhere. This success led the Government to reconsider the programme completely with the aid of UNICEF and WHO (which had taken over the activities of the ITC) it drew up a plan of operations for the whole country with the aim of tuberculin testing 20 million children and adolescents aged from 1 to 20 years before the end of 1956 and BCG vaccinating the non reactors to tuberculin. The campaign is not yet completed but 15 million tuberculin tests and 5 million vaccinations had been carried out by September 1955.

Organization of campaign

The central administration assisted by the international team, is responsible for co-ordinating operations, but organization of the campaign in each province is entrusted to the provincial authorities. According to the size of the province, units of from 4 to 10 teams each with 3-4 or 8 vaccinators work in each province which they systematically cover district by district. Each unit is directed by one or two medical officers. Because of the shortage of qualified medical personnel the vaccinators are recruited among young men who have completed their secondary studies. They are trained by the instructors of the international team for a period of 6 to 8 weeks and are subsequently supervised by the medical officer in charge of the unit. They carry out their work under difficult conditions for eight months of the year the temperature never falls below 30°C and sometimes reaches even 50°C they must cover long distances frequently on foot to reach a village. Consequently, the daily programme is carefully planned so as to lighten their task. The team leader goes a week in advance to all the localities which are to be visited by the vaccinators. He then gets in touch with the village headman and with influential persons whom the headman may suggest discussing with them the site of the vaccination centre and ways and means of assembling the local population. This preliminary planning is far from being a loss of time. It may even be said that its absence greatly hinders the operations for whenever such preparations are neglected the people are uninformed and indifferent. On the other hand they show

* A more detailed account of this campaign by E. Roelsgaard, H. Christensen & E. Iversen will appear in a coming number of the *Bulletin of the World Health Organization*.

interest when the operations are carefully organized

Techniques of tuberculin testing and BCG vaccination

When the BCG programme was launched in 1949 practically nothing was known as regards the tuberculin sensitivity of Asian peoples and it was decided to employ the same technique as that used for BCG campaigns in Europe. The Mantoux test was used for case-finding i.e. the intradermal injection of 1 TU followed by an injection of 10 TU in the event of a negative reaction. The reaction was considered positive if the induration measured 6 mm or more in diameter three days after the injection. Only persons who reacted negatively to both 1 TU and 10 TU were selected for BCG vaccination. This method which required three visits was simplified as soon as the results obtained by the Tuberculosis Research Office (TRO) with single injections of 10 TU or 5 TU became known.² A dose of 5 TU has been used since August 1950. The Moro-patch test which was applied at the outset to children under 12 years of age was given up after a few months for various reasons in particular because it was less sensitive in the case of Pakistani children than the Mantoux test.

Up to December 1949 PPD solutions ready for use were sent weekly to the vaccination team from the King Institute at Madras. Subsequently they were prepared in a laboratory established at Karachi which the Statens Seruminstitut of Copenhagen supplies with PPD stock solutions.

Persons with a negative tuberculin reaction are given 0.1 ml of vaccine containing 0.75 mg moist weight of BCG per ml injected intradermally into the left deltoid region. The vaccine and the PPD dilutions are kept at a temperature of 2°-4°C away from direct and

indirect sunlight so as to prevent deterioration of allergenic potency.

The vaccine which was supplied at the outset of the campaign by the King Institute of Madras and then by the Statens Seruminstitut has since February 1953 been prepared exclusively in the BCG production laboratory established at Karachi with the aid of the ITC. This laboratory has been authorized to produce the vaccine by the WHO Expert Committee on Biological Standardization.

Proportion of population tested and vaccinated

At the 1951 census the population of Pakistan was 76 million. 12 million inhabitants underwent the tuberculin test between August 1949 and December 1954. Nevertheless only 9 million attended for the reading of the test so that a quarter of the tests were carried out in vain. Four million or slightly less than half the persons completing the test, gave no reaction and almost all of them (99%) have been vaccinated. The 9 million completing the tuberculin test represent 11% of the total population (13% of the men and 10% of the women). Although the campaign is aimed particularly at children and adolescents (16% of boys and 12% of girls less than 20 years of age have been tested) the proportion of people aged more than 20 who underwent the tuberculin test is 8% 9%.

The age distribution of the persons tested is as follows: under 7 years of age 21% 7-14 years 29% 15-19 years 15% 20 years or more 35%. The corresponding figures for persons vaccinated are 32% 36% 13% and 19%. As can be seen the vaccinated population is on the whole younger than the tested population. This is due to the fact that a relatively high proportion of older persons reacted positively to tuberculin and consequently were not eligible for vaccination. Thus among those less than 20 years

of age, the proportion eligible for vaccination was 60% whereas above this age it was only 25%

Distribution of reactions according to diameter of indurations

Tuberculin testing during mass campaigns can give an approximate idea of the prevalence of tuberculosis in a community. For this purpose the population concerned should be divided into two separate groups, the infected and the non infected. It may be asked to what extent classification according to the diameter of the induration enables such a distinction to be made. It is impossible to say with absolute certainty whether a person with a 4 mm or 5 mm reaction belongs to one or the other group. In West Pakistan it was found, however, that these "doubtful" reactions constituted only 4% of the total. In East Bengal medium sized reactions are much more frequent than in West Pakistan and the distribution of reactions according to the diameter seems to indicate the presence of two types of tuberculin sensitivity: a high grade sensitivity due to tuberculous infection and a low grade non specific sensitivity. The presence of non specific sensitivity (which has been observed moreover, in other parts of the world) would seem to limit considerably the usefulness of the tuberculin test since the largest non specific reactions cannot be distinguished from the smallest specific reactions. In West Pakistan it is difficult to classify persons developing indurations of 4-5 mm after the administration of a dose of 5 TU. In East Bengal the same problem arises for persons with reactions between 4 mm and 10 mm, i.e., 40% of the population tested. The results given by the 10 TU test are no easier

to classify than those obtained with the 5 TU test.

Tuberculin sensitivity

In determining the prevalence of tuberculous infection on the basis of the number of persons found to be allergic to tuberculin it was decided to exclude the figures for East Bengal, in view of the frequency of non specific sensitivity in that province as well as the data collected in the tuberculosis dispensaries and permanent BCG centres and during control tests. Similarly, the age groups "0-6 years" and "20 years and above" were excluded since their composition often varied greatly from district to district. Despite the precautions taken the results must be regarded with some reservation. A large number of persons tested did not bother to attend for the reading perhaps because they felt their reaction to be positive. If this is the case the number of persons recorded as positive would correspond to a fraction only of the real number.

Bearing these reservations in mind the distribution of tuberculin reactors of both sexes belonging to the age groups 7-14 years and 15-19 years respectively is as follows: 48% and 65% in the provincial capitals, 45% and 62% in the urban areas, 41% and 56% in the rural areas. Allergy is generally more frequent among young men of 15-19 years than among girls of the same age. As to children aged 7-14 years the study has revealed a very interesting fact, namely that in the large towns the percentage of positive reactors is higher among boys than among girls while in the other urban areas it is almost equal for both sexes and in the rural areas it is higher among girls than among boys.

THE WORK OF THE INSTITUTE OF NUTRITION OF CENTRAL AMERICA AND PANAMA

The Institute of Nutrition of Central America and Panama (INCAP) was created in 1949 in Guatemala City on the initiative of the Government of Panama and of the Pan American Sanitary Bureau (PASB) for the purpose of providing States which are members of the Institute—Costa Rica, El Salvador Guatemala Honduras Nicaragua and Panama—with a technical centre for the investigation and practical solution of nutritional problems in these countries. The costs of the Institute are borne jointly by the participating governments PASB (which acts as the WHO Regional Office for the Americas) being responsible for administrative direction and supervision.

The Council of INCAP is composed of a representative of each Member State a representative of PASB and a representative of the W K Kellogg Foundation which is an honorary member of the Institute.

The purpose of INCAP is primarily to give advice and technical assistance to the governments of Member States for the prevention and treatment of nutritional deficiencies among their populations and to promote development of the science of nutrition by means of activities covering a wide field and including

- (a) clinical studies of nutrition
- (b) surveys to ascertain the nutritional needs and dietary habits of the population
- (c) investigation and analysis of local foods
- (d) anthropological and genetic studies
- (e) studies of animal nutrition

(f) instruction in the field of nutrition for agronomists clinicians biochemists physicians and educators and training of specialists in nutrition

(g) special projects

(h) co-operation with universities and agronomic institutes of the region and with other organizations and scientific groups working in related fields for the purpose of improving traditional dietary customs and of finding rational solutions to the problems raised by deficiency diseases

For the implementation of this vast scientific and practical programme INCAP is obtaining the collaboration of the Massachusetts Institute of Technology (Department of Food Technology) the W K Kellogg Foundation the Rockefeller Foundation and FAO which maintains close liaison with INCAP particularly in connexion with diet surveys for the purpose of discovering dietary patterns and of compiling tables showing the composition of foods.

As mentioned above the Pan American Sanitary Bureau provides the Institute with technical advice and is responsible for administrative direction and supervision it also makes available the services of specialists. Two members of the PASB fulfil the functions of Director and Deputy Director of the Institute which also receives financial assistance from PASB so that consultants may be called in and for technical and administrative meetings. WHO subsidizes INCAP for the promotion of studies for the evaluation of vegetable foods and food

preparations in the prevention and treatment of protein deficiency in children

In order to put its activities on a practical basis INCAP organizes programmes for the dietary education of the public which are carried out by the governments of the Member States. Specialists in the malnutrition diseases prevalent in these countries—endemic goitre, multi deficiency syndrome in children (kwashiorkor), avitaminosis A, anaemia, atherosclerosis, and pellagra—collaborate in the development of these programmes and a modern building is available adequately equipped for training courses with conference and seminar rooms, a library, an experimental kitchen, a refrigeration room, and modern teaching material.

The Institute's scientific works are published in various medical journals in the Member States and in the United States of America, and also in the *Boletín de la Oficina*

Sanitaria Panamericana Supplements Nos 1 and 2 of the *Boletín*¹ include several of the Institute's monographs.

Supplement No 2 appeared in November 1955 and contains a series of articles on dietary surveys—which will undoubtedly serve as a point of departure for the establishment of future nutritional programmes for the region—a number of clinical studies of nutrition in Guatemala, El Salvador and Panama, studies of animal nutrition, food analyses, anthropological and genetic studies, tables showing the composition of food stuffs, and an index giving the scientific and common names (with English translation) of food elements used by various Central American populations prepared in collaboration with various health and agricultural authorities of the region.

Boletín Oficina Sanitaria Panamericana 1955, S. p. L. No 2. Publicado en las oficinas del Instituto de Nutrición de Centro América y Panamá, Washington, D. C.

Epidemiological and Statistical Information

MORTALITY FROM ACCIDENTS (Other than Transport Accidents)

In countries with the best health conditions accidents now cause more deaths than diseases particularly among infants and adolescents. This apparent paradox which can however, be explained by the progress made in curative and preventive medicine is brought out in the latest *Epidemiological and Vital Statistics Report* published by WHO¹ which deals with mortality from accidents other than transport accidents. This study the first of its kind on an international scale complements the report published in 1953 on transport accidents².

As in the Intermediate List of the 1948 International Statistical Classification of Diseases, Injuries and Causes of Death the 74 types of accident (other than transport accidents) are grouped in 8 principal categories as follows: (1) accidental falls, (2) accidental drowning and submersion, (3) accidental poisoning, (4) accident caused by fire and explosion, (5) accident caused by machinery, (6) accident caused by hot substance, corrosive liquid, steam and radiation, (7) accident caused by firearms, (8) all other accidental causes.

Table I shows the percentages of deaths in 1953 from each of these categories of accident.

¹ *Epidemiol. vital. Statist. Rep.* 1956, 9, 1.
² *Epidemiol. vital. Statist. R. p.* 1953, 6, 257. *Ch. a. W. H. H. H.*
O. R. 1957, 8, 166.

TABLE 1 DEATHS FROM THE DIFFERENT CATEGORIES OF ACCIDENT (OTHER THAN TRANSPORT ACCIDENTS) AS PERCENTAGE OF ALL ACCIDENTS — 1953

B and C. 1948 Intermediate List of International Classification

Type of accident	Cairo	Canada	United States (all cities)	Japan	Australia	New Zealand	Ceylon	Federal Republic	Australia	Denmark	Finland	France	Ireland	Italy	Netherlands	United Kingdom			Sweden	Switzerland
																England and Wales	Scotland	Northern Ireland		
1 Accidental poisoning	30	71	51	46	63	59	55	55	120	110	122	70	35	45	49	98	165	57	45	52
2 Accident fall	213	303	339	135	403	325	429	54	614	614	603	794	343	432	428	705	404	411	428	498
3 Accident caused by machinery	04	5	41	15	6	63	15	07	07	07	19	02	10	14	15	13	18	12	10	5
4 Accident caused by fire and explosion	136	98	127	58	61	50	23	26	19	58	04	70	43	5	07	81	50	57	81	09
5 Accident caused by hot substances	13	15	18	29	17	17	37	23	14	15	45	54	64	06	13	13	27	54	10	28
6 Accident caused by firearm	22	33	44	08	46	30	05	15	11	20	15	16	32	25	03	10	05	10	22	12
7 Accidental drowning and submersions	73	187	103	333	175	169	109	96	83	343	147	36	159	5	132	96	115	135	705	111
8 All other accident causes	309	240	219	375	709	217	316	451	142	180	493	27	212	157	524	720	212	709	148	247

Mortality by sex and age

Three interesting facts emerge from the study of mortality from accidents by sex and by age and in relation to general mortality

(a) Although in most countries accidents do not cause as many deaths as certain diseases, they nevertheless constitute one of the principal causes of death among particular age groups

(b) The male and female accident mortality rates vary considerably being much higher for men for all categories of accident except falls, which are more frequently fatal among women of 60 years and over

(c) The accident mortality rates among children, adolescents and old people are constantly rising

Children of pre school age are the chief victims (see Table II). Comparison of rates of mortality from particular accidents among infants under 1 year with the total accident death rate for this age group shows that the most frequent fatal accident in certain countries is suffocation Italy 27%, France 31.7% Netherlands 54%, England and Wales 74.6% Canada, 80.3% Scotland 96.4% Japan (1952) 74.5%

TABLE II PROPORTION (%) OF DEATHS FROM ALL ACCIDENTS (OTHER THAN TRANSPORT ACCIDENTS) COMPARED WITH THE GENERAL MORTALITY AT DIFFERENT AGES ACCORDING TO SEX - 1953

Country	Male				Female			
	1-4 years	5-9 years	15-19 years	60 years and over	1-4 years	5-9 years	15-19 years	60 years and over
Canada	19.7	24.6	23.7	1.9	15.6	10.4	9.0	2.3
United States	18.8	22.7	23.0	2.1	17.2	16.8	7.3	2.6
Ceylon	2.1	7.1	16.5	1.8	1.8	7.0	6.5	0.7
Japan	12.1	20.9	14.2	1.1	8.9	8.3	4.3	0.7
Australia	18.1	21.8	21.1	1.7	15.3	10.7	4.3	2.4
New Zealand	22.8	27.7	15.6	1.5	20.2	10.3	6.9	2.2
Germany (Federal Republic)	22.1	23.9	25.0	1.7	15.8	12.6	6.9	1.8
Austria	23.9	29.1	37.5	2.3	24.0	15.3	12.9	2.1
Denmark	24.3	20.1	9.4	1.8	16.4	9.2	3.0	3.2
Finland	26.1	46.1	30.6	1.3	17.4	21.9	9.8	1.9
France	13.1	18.2	30.5	2.2	10.3	12.5	11.8	2.0
Ireland	5.7	12.0	14.2	1.0	9.1	8.7	1.3	7.4
Italy	8.2	10.3	19.6	1.1	6.2	7.0	4.5	0.6
Norway	23.2	36.6	23.5	2.3	14.6	16.0	6.1	2.8
Netherlands	31.5	39.4	33.0	2.0	22.8	28.8	32.4	2.3
United Kingdom								
England and Wales	12.6	18.3	15.9	1.1	10.5	8.5	4.1	1.8
Scotland	14.8	18.6	20.6	1.7	12.2	15.8	1.6	2.4
Northern Ireland	12.7	8.5	4.2	1.5	6.8	3.8	4.0	1.9
Sweden	23.4	29.6	14.0	1.3	20.0	10.8	2.1	1.9
Switzerland	25.6	21.8	23.0	2.1	20.1	10.3	8.5	2.3

TABLE III PROPORTIONAL MORTALITY (%) BY AGE AND SEX FROM ACCIDENTAL FALLS COMPARED WITH TOTAL MORTALITY FROM ACCIDENTS (OTHER THAN TRANSPORT ACCIDENTS)

Country	Male				Female			
	all ages	25 years	25-64 years	65 years and over	all ages	25 years	25-64 years	65 years and over
Canada 1953	100	2.9	8.1	89.1	100	0.7	1.2	98.1
United States 1953	100	1.8	8.8	89.4	100	0.6	2.1	97.3
Japan 1952	100	9.8	25.6	64.6	100	6.6	9.0	84.4
Germany Federal Republic 1953	100	3.5	8.3	88.2	100	0.6	2.2	97.2
Italy 1953	100	5.9	15.6	78.5	100	3.0	7.3	89.7
Netherlands 1953	100	2.9	6.8	90.3	100	0.7	2.4	96.9
England and Wales 1-53	100	2.9	7.3	89.8	100	0.6	1.9	97.5

Mortality by type of accident

The percentages of deaths from all accidents (including transport accidents) in relation to the total death rate differ considerably from country to country varying from 2.4% in Ireland to 6.8% in Canada. The highest rates (6.1 / 6.8%) were those for the Netherlands USA Australia and Canada in Sweden Japan Austria France Denmark Germany New Zealand, Finland Norway and Switzerland the rates range from 4.3% to 5.4% and in Ireland Ceylon England and Wales and Italy they vary from 2.4% to 3.3%.

Among the male population from 3% to 8.6% of all deaths are due to accidents but only 1.4% to 4.8% among women.

Mortality from transport accidents

Transport accidents are responsible for 0.4% / 3% of all deaths (1.8 / 5.2% for the male as against 1% / 4% for the female population). It has been statistically demonstrated that in some countries transport accidents account for as many deaths as tuberculosis particularly among the young and that they are more often fatal than nephritis diabetes or in some cases influenza. It is noted that mortality from transport accidents increases with age. The rate in 1953 was slightly

higher than in previous years in some countries but this tendency is not surprising if it is considered that the most serious accidents are caused by motor vehicles the number of which is increasing at a considerable rate.

Study by category of accident (other than transport accidents)

Accidental falls

Comparison of the statistical data for the 18 countries covered in the Report demonstrates that in nearly all countries accidental falls are responsible for the greatest number of deaths from accidents. The persons principally affected are those 60 years old and over and women predominate. In Canada 98.1% of fatal accidents among women over 65 years of age were due to accidental falls. The percentages given in Table III are very significant.

Accidental drowning and submersion

Accidents from drowning and submersion constitute the next most important category of accident after falls. It is noted that quite naturally these accidents are more frequent in seaboard countries or countries where there are many lakes and rivers (Finland, Japan Norway Sweden Canada Ireland Italy) in countries where a large part of the population is engaged in navigation and fish

ing and in countries with bathing resorts which attract large numbers of summer visitors each year (see Table I)

The rate of mortality from this type of accident is very high among children of both sexes in the age group 1-4 years, of 8335 drowning accidents registered in Japan in 1953 3682 occurred among children of this age. On the other hand in France and England and Wales the age group 60 years and over is the most affected by this type of accident. Figures for accidental drowning and submersion were proportionally highest in 1953 in Finland where they constituted 34.3% of the deaths from all accidents except transport accidents.

Accidental poisoning

Accidental poisoning comes third in order of importance although its importance varies according to country, sex, and age. The rate is high among children 1-4 years of age but the highest rates are among age groups over 40 years.

Accidents caused by fire and explosion of combustible material

Children and old people are the chief victims of accidents caused by fire and explosion of combustible material. The proportional figures are definitely higher in some countries (Canada and the USA) than in others particularly among the age groups 1-10 years and 60 years and over.

Accidents caused by machinery

The figures with regard to accidents caused by machinery refer mainly to men particularly from the age of 15 years to 60. Deaths among women from this type of accident are almost non-existent.

Accidents caused by hot substance, corrosive liquid, steam, and radiation

Here again, children (1-4 years) of both sexes are the principal victims. In the USA however, the highest rate of fatal accidents of this type is for men of 60 years and over, whereas in France women in this same age group are the most affected.

Accidents caused by firearms

These accidents are definitely more frequent among the male population (15-60 years). In 1953 there were 124 fatal accidents of this kind in Denmark, Finland, Norway and Sweden together, and only 3 of this number were women.

All other accidental causes

This group includes 20 titles each referring to a particular type of accident (explosion of pressure vessel, excessive heat or cold, cataclysm, etc.) and 17 titles relating to complications due to medical procedures and late effects of accidents. It is for this reason that the percentages shown in Table I

TABLE IV DEATHS FROM ALL ACCIDENTS (INCLUDING TRANSPORT ACCIDENTS) IN 1952

Crude death rates per 100 000 inhabitants of each sex

Country	Both sexes	Male	Female
United States	60.0	84.9	35.9
Canada	3.6	84.4	32.0
France	38.3	81.8	36.3
Australia	55.5	79.8	30.5
Switzerland	55.5	81.5	30.9
Germany	53.6	81.9	30.6
Austria	52.8	71.1	31.8
Finland	49.7	74.6	36.9
Netherlands	49.3	63.2	35.5
Norway	43.6	61.6	25.7
New Zealand	43.5	61.3	35.5
Denmark	41.7	51.7	31.8
Sweden	41.4	59.6	23.4
Japan	37.3	58.0	21.2
England and Wales	33.6	43.1	24.9
Scotland	47.8	62.8	34.0
Italy	33.0	33.4	13.6
Ceylon	31.9	40.0	30.7
Ireland	30.1	36.6	19.3

TABLE V MORTALITY BETWEEN 1 AND 19 YEARS OF AGE BY SEX FROM ALL INFECTIVE AND PARASITIC DISEASES IN 1953
Percentage of deaths from all causes

Country	Male				Female			
	1-4 years	5-9 years	10-14 years	15-19 years	1-4 years	5-9 years	10-14 years	15-19 years
Canada	1.6	11.1	9.7	7.9	15.1	15.0	19.3	13.2
United States								
White	10.4	9.3	6.9	3.4	10.9	10.9	8.4	5.9
Coloured	11.2	11.0	7.7	7.0	13.7	11.8	12.2	17.2
Ceylon	20.4	75.5	18.3	17.4	70.6	77.5	19.7	10.8
Japan	29.2	75.2	18.6	19.2	37.3	36.0	75.6	30.8
Germany								
Federal Republic	16.2	12.8	5.4	3.9	70.2	14.9	6.3	9.8
West Berlin	39.0	12.0	8.9		47.2	18.2	70.0	
Austria	17.3	10.1	7.9	4.4	16.2	19.8	12.1	13.6
Denmark	10.0	11.8	6.9	8.3	10.5	15.8	4.4	6.1
Finland	11.8	7.3	10.8	12.1	17.1	10.9	12.7	73.5
France	12.9	13.8	8.2	8.0	14.5	17	12.8	13.2
Ireland	76.6	27.0	70.3	21.7	25.9	24.3	27.7	35.0
Italy	17.6	20.3	12.0	9.7	18.9	22.1	19.2	21.4
Norway	8.8	8.2	13.8	2.9	15.4	16.0	8.3	14.3
Netherlands	19.3	12.9	6.5	2	72.4	21.9	13.3	12.9
United Kingdom								
England and Wales	10.7	13.7	8.1	7.6	70.4	15.8	8.1	1.9
Scotland	17.4	11.0	9.9	6.2	4.4	5.3	70.5	23.0
Northern Ireland	13.9	4.3	11.8	14.8	13.7	30.8	14.3	8.0
Sweden	4.3	6.8	5.4	8.4	5.0	5.8	8.8	11.5
Switzerland	10.4	12.8	12.1	4.5	14.0	14.5	10.1	11.7
Australia	11.3	15.3	10.9	3.8	1.3	16.7	11.1	8.1
New Zealand	12.6	10.6	25.0	3.3	18.3	1.3	5.3	13.8

1952 figure

are so high taking second place. The chief victims of these types of accident are infants under one year and persons of 60 years of age and over. It is interesting to note however that even between these two extreme age groups the mortality rate is fairly high compared with that for other categories of accident for the same age groups. "Other accidental causes" mainly affect men of all ages.

Table IV gives 1953 mortality rates for selected countries with respect to all accidents including transport accidents. These figures are given in order of importance in crude rates per 100 000 inhabitants of each sex.

For purposes of comparison Table V indicates mortality in 1953 from all infective and parasitic diseases among the age groups 1-19 years.

Reports of Expert Groups

DRUGS LIABLE TO PRODUCE ADDICTION

In the sixth report of the WHO Expert Committee on Drugs Liable to Produce Addiction,¹ it is recommended that the following synthetic substances with morphine like effect be considered addiction producing drugs and therefore subjected to the relevant controls 3 hydroxy N phen ethylmorphinan, 4-morpholino 2,2 diphenyl ethyl butyrate, 4-dimethylamino 1,2 diphenyl 3 methyl 2 propionoxybutane, 3 diethyl amino 1,1 di (2 thienyl) 1 butene (diethyl thiambutene) and 1,3 dimethyl 4-phenyl 4-propionoxyhexamethyleneimine However, () 3 hydroxy N allylmorphinan (levallorphan) and certain related compounds are not to be regarded as addiction producing The report points out that the myristyl ester of benzylmorphine although it possesses no addiction producing liability in itself, constitutes a public health hazard because of its ready convertibility into benzylmorphine

World Health Organ. Tech. Rep. Ser. 1956 102. 21 pages Price 1/9 £0 30 or Sw fr 1— Published in English, French and Spanish.

It is noted in the report that the world licit production of diacetylmorphine (heroin) has shrunk from 839 kg in 1948 to 132 kg in 1954 and that, of the 20 States which have supplied production estimates for this substance for 1956, only 4 are not prepared to suppress its licit medical use It is concluded that more and more physicians are now finding it possible to substitute less dangerous drugs for heroin

Also considered in this report are the abuse of amphetamine in various areas, a matter which is as yet one for local rather than international action and the use of pethidine, which is complicated by the fact that this drug is marketed under a variety of names, so that the physician is not always aware of the drug with which he is dealing and of the consequent dangers The latter problem the report points out, emphasizes the importance of identifying each new drug by its recommended or proposed international non proprietary name

Statistics of Cases of and Deaths from Communicable Diseases

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The programme as proposed provides for the training of the necessary staff and for the study of the various treatment schedules recommended by WHO as they apply to conditions in Iraq. Mass treatment would be given in general dispensaries, maternal and child health centres and schools and to members of certain groups such as the police and the armed forces. A national centre would be set up in Baghdad and regional sub-centres at Mossoul and Basrah.

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Seminar on Tuberculosis Survey Methods

Leading national specialists in tuberculosis control services and WHO officials associated with tuberculosis control activities in Afghanistan, Burma and Indonesia met in March in New Delhi with Indian experts and advisory staff of the WHO Regional Office for South East Asia. During a seminar lasting three weeks they studied suitable methods for making national tuberculosis surveys. At its eighth meeting, the Regional Committee for South East Asia stressed the importance of these surveys which enable the health services concerned to collect the information they need for establishing effective tuberculosis control programmes.

The national tuberculosis survey recently inaugurated by the Government of India is

Reports of Expert Groups

DRUGS LIABLE TO PRODUCE ADDICTION

In the sixth report of the WHO Expert Committee on Drugs Liable to Produce Addiction,¹ it is recommended that the following synthetic substances with morphine like effect be considered addiction producing drugs and therefore subjected to the relevant controls 3 hydroxy N phen ethylmorphinan, 4 morpholino 2,2 diphenyl ethyl butyrate, 4-dimethylamino 1,2 diphenyl 3 methyl 2 propionoxybutane, 3 diethyl amino 1,1 di (2'-thienyl) 1 butene (diethyl thiambutene) and 1 3 dimethyl-4-phenyl-4-propionoxyhexamethyleneimine However, () 3 hydroxy N allylmorphinan (levallorphan) and certain related compounds are not to be regarded as addiction producing The report points out that the myristyl ester of benzylmorphine although it possesses no addiction producing liability in itself, constitutes a public health hazard because of its ready convertibility into benzylmorphine

Wld Hlth Org techn Rep Ser 1956 102. 21 pages Price 1/9 50 30 or Sw fr 1 — Published in English, French and Spanish.

It is noted in the report that the world licit production of diacetylmorphine (heroin) has shrunk from 839 kg in 1948 to 132 kg in 1954, and that, of the 20 States which have supplied production estimates for this substance for 1956, only 4 are not prepared to suppress its licit medical use It is concluded that more and more physicians are now finding it possible to substitute less dangerous drugs for heroin

Also considered in this report are the abuse of amphetamine in various areas a matter which is as yet one for local rather than international action and the use of pethidine which is complicated by the fact that this drug is marketed under a variety of names so that the physician is not always aware of the drug with which he is dealing and of the consequent dangers The latter problem, the report points out emphasizes the importance of identifying each new drug by its recommended or proposed international non proprietary name

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The national tuberculosis survey recently inaugurated by the Government of India is

the second survey of this kind to be undertaken in the world, the first having been carried out in Japan². The participants in the seminar were able to study in detail the methods employed by the Indian services, which were explained to them by Dr P V Benjamin, Tuberculosis Adviser to the Indian Government, Dr B K Sikand, Director Delhi State Area, Indian National Tuberculosis Survey, Dr Raj Narain, Assistant to Dr Sikand and Mr S S Nair and Mr G P Mathur, Statistical Officers in the Indian National Tuberculosis Survey. Dr E J T McWeeney, Regional Adviser on Tuberculosis and Dr Enid Charles, Regional Adviser on Epidemiology and Health Statistics, both attached to the WHO Regional Office for South East Asia, were responsible for directing the discussions.

Emergency Shipment of Iron Lungs to Argentina

In order to assist the health authorities of Buenos Aires to combat an epidemic of poliomyelitis which has broken out in that city and its vicinity, the Pan American Sanitary Bureau—which acts as the WHO Regional Office for the Americas—has sent 40 iron lungs to Argentina in urgent response to a request from the Argentine Government.

The Bureau has used its Emergency Fund to make the purchase and the United States Air Force and Military Air Transport Service have supplied aeroplanes for transporting the lungs.

The Bureau has maintained close contact with the National Foundation for Infantile Paralysis which has great experience in poliomyelitis work and which is also sending two outstanding specialists to Argentina. With funds made available by the International Co-operation Administration the Foundation is also purchasing and sending equipment including infant juvenile, and portable iron lungs and several rocking beds.

The reports received by the PASB from the Argentine Government list 1310 cases of poliomyelitis with 120 deaths from 1 January to 12 March.

Epidemiological Study of Yaws in Java

A scientific report³ has appeared on the mass yaws control campaigns which have been conducted for the past four years in Indonesia by the Government of that country with the assistance of WHO and UNICEF. The report is based partly on observations made in the research area in Twajas a sub-district in Central Java where, out of a total population of 40 000 about 7000 cases of yaws have been detected during the campaigns and partly on information collected by the author in a village in Twajas in which practically every inhabitant of 529 households was clinically and serologically examined. This survey is a valuable contribution to the study of the epidemiology of yaws not only on account of the mass of useful material it provides but also from the point of view of the thorough analysis made by the author of the sociological demographie and economic factors of the disease.

Appointment of a USSR Specialist

Dr Olga Makeeva, former chief of the obstetrical and gynaecological service in the Moscow City Department of the USSR Ministry of Public Health, and former holder of the Chair of Gynaecology and Obstetrics in the Post Graduate School of Medicine Moscow, has been appointed to the combined maternal and child health and public health training project being launched by the Government of the State of Saurashtra, India. Dr Makeeva is the first USSR national to take part in the work of WHO in a purely technical capacity.

A New Zealand Nurse-Educator in Taiwan

Miss Merle S Farland has been appointed as nurse-educator to the maternal and child health project in Taiwan which is being implemented by the Government with the assistance of WHO. Before proceeding to her duty station, Miss Farland visited mater-

² Klokke A H (1955) Yaws in the house holds of Twajas (Central Java) an epidemiological study from the treponematoses control program. I done in Surabaja.

nal and child health centres and hospitals at Manila and Cebu in the Philippines. She also called in at Singapore in order to study the nursing aspects of a number of projects which are being developed there and in which WHO is participating.

Before this appointment Miss Farland was matron of the Apia Hospital in Western Samoa, and earlier she was the principal of the Lautoka Nursing School in Fiji. As a member of a Colombo Plan team she has also worked at the Dacca Medical College Hospital in East Pakistan.

Experts Visit the New Quarantine Station at Jeddah

At the invitation of the Government of Saudi Arabia three quarantine experts and an official of the WHO Regional Office for the Eastern Mediterranean visited the new quarantine station which has been installed at Jeddah for the reception and health control of pilgrims to Mecca. The experts were Professor A. Halawani, Director General of the Endemic Diseases Department of the Egyptian Ministry of Health, Colonel M. Jafar, Director of Health of Pakistan, and Professor G. H. Canaperia, Director of the International Health Services Office of the Italian High Commissioner for Public Health and Hygiene, Italy. They were accompanied by Dr. Wasfy Omar, Chief of the Epidemiology Section of the WHO Regional Office for the Eastern Mediterranean, who acted as secretary to the mission. The experts were also invited by the Saudi Arabian Government to visit other health institutions.

Appointment of a Dental Health Consultant for the Philippines

A recent law passed by the Congress of the Philippines providing for the establishment of rural health units throughout the country stipulates that dental health services are to be set up at various points. At the Government's request WHO has appointed a dental health consultant—Dr. J. L. Saunders—who will go to the Philippines to study together with the Chief of the Dental Health Division of the

Ministry of Health of that country the details of the programme which is to be implemented.

Dr. Saunders has wide experience in the organization and administration of dental health services: he was formerly Director of the Division of Dental Hygiene of the Department of Health of New Zealand, and he has also given assistance in an advisory capacity to the Governments of Ceylon, the Federation of Malaya, Thailand and Indonesia in the development of their dental health programmes.

Creation of the First School of Nursing in Libya

On the recommendations of Mrs. H. Kurhan, who as a WHO nurse consultant has spent several months in Libya studying that country's needs in nursing personnel, the Libyan Government plans to create a school of nursing in Tripoli. It is expected that WHO, UNICEF and USICA (Point 4 programme) will assist by providing staff and teaching equipment.

Both men and women will be admitted and the nursing course will cover three to four years. Students who obtain the diploma will be attached to hospitals and health centres.

This programme will undoubtedly raise the status of nurses whose prestige up to the present has not been very high and who have been poorly paid. It is believed that the school will also play an important part in raising the country's health standards.

Opening of a School for Health Assistants in Nepal

The opening of the first health assistants training school at Kathmandu represents an important step in the development of health services in Nepal for the new health programmes require more medical staff than is at present available in the country. While physicians will continue in the immediate future to study abroad, it will now be possible for assistant personnel to be trained within the country.

A public health specialist and a sanitarian sent by WHO have been made responsible

for giving advice and assistance to the teaching staff in that part of the programme covering sanitation, communicable disease control, health education, and first aid. Officials of the Ministry of Health will also give courses in their various specialities. The first group of 20 students will complete their studies in two years.

In addition to its role as a teaching establishment, the school is to serve as a centre to which qualified public health service personnel can apply for advice on certain problems, for specialized documentation, and for visual aids.

Opening of a Physiotherapy School in Pakistan

The Federal Government of Pakistan has just opened a school for the training of physiotherapists in the Jinnah Central Hospital Karachi. The first 12 students will be admitted in the near future.

The school is under the direction of Miss Zulekha Sobani, who will be assisted during the first two years by Miss Diana Kidd, WHO physiotherapist adviser, who has had wide experience of teaching physiotherapy in other countries. WHO will provide equipment, supplies, books and other teaching aids.

The Jinnah Central Hospital already has a physiotherapy department directed by Miss Sobani. The scheme assisted by WHO provides for the development of this department so that modern methods of physiotherapy and the rehabilitation of physically handicapped persons can be taught there. The Government will grant study fellowships to attract candidates with the necessary ability. It will also provide buildings and personnel as well as equipment and supplies that are available within the country.

Seventh Seminar on World Health

The World Federation of United Nations Associations (WFUNA) is again organizing during the Ninth World Health Assembly this year, a Seminar on World Health which

will be held from 7 to 18 May 1956. This Seminar will enable future physicians, public health administrators and paramedical workers from all over the world to understand better the aims and activities of WHO and to learn something of existing international health problems.

As in previous years, the participants in the Seminar will be able to hear lectures given by regional directors and members of the WHO Secretariat and to attend meetings of the World Health Assembly. They will also have free access to the Organization's library where they will be able to peruse all WHO publications.

New Contribution to the Special Account for the Eradication of Malaria

The Federal Republic of Germany has just contributed a sum of 200 000 DM (\$50 000) to the special account for the eradication of malaria. This fund was instituted by the Eighth World Health Assembly in May 1955 for the purposes of financing scientific research and of providing technical services and equipment for countries campaigning against malaria with a view to complete eradication of this disease. The fund is constituted by voluntary contributions from governments or private persons. The gift from Germany is the third of its kind; Brunei and China were the first two donors.

Publication of the Proceedings of the Geneva Conference on Atomic Energy

The United Nations, which undertook to publish in their entirety the proceedings of the International Conference on the Peaceful Uses of Atomic Energy held in August 1955 in Geneva, has announced that this publication will shortly appear. It may be said to represent the first complete reference work on the peaceful uses of atomic energy and it will remain the standard text on the subject for many years. There are 16 volumes in all, each of about 550 pages; they will comprise all papers submitted at the Conference and the verbatim records of the discussions to

which the papers gave rise. The questions relating to health and medicine⁴ are dealt with more particularly in the following four volumes. Volume 10—Radioactive Isotopes and Nuclear Radiations in Medicine (three chapters "Isotopes in Medicine and Biology" "Therapy" "Diagnosis and Studies of Disease") Volume 11—Biological Effects of Radiation (five chapters "Modes of Radiation Injury and Radiation Hazards" "Mechanisms of Radiation Injury" "Protection and Recovery" "Genetic Effects"

⁴ See *Chron. Wild Ills. Org.* 1955 9 303.

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CONTENTS

	Page
Field trial of typhoid vaccines	153
Water pollution in Europe	156
Malaria eradication a progress report	161
Epidemiological and Statistical Information	
Cirrhosis of the liver and alcoholism	166
Mortality from suicide	170
Reports of Expert Groups	
Food hygiene	172
Recent advances in the diagnosis and treatment of trachoma	175
The training of auxiliary health workers	177
Notes and News	
Study group on paediatric education	179
Inter regional malaria conference	179
Expert Committee on Malaria sixth session	180
Expert Committee on Insecticides seventh session	180
Expert Committee on Organization of Medical Care	181
European conference on post basic nursing education	181
Study group on toxic hazards of pesticides to man	182
Advisory group on accident prevention	183
Seminar on vital and health statistics	183
Study group on water standards	183
Seminar on teaching of preventive medicine	184
Malaria consultant for Eastern Mediterranean countries	184
BCG vaccination in Jordan	185
Contribution to special malaria eradication account	185
New appointments	185
Review of WHO Publications	186

SCHEDULE OF MEETINGS

4-8 June	Advisory Group on Prevention of Accidents in Childhood Geneva
5-14 June	PASB/AMRO Executive Committee twenty-eighth session Washington, D C
6-13 June	Study Group on the Toxic Hazards of Pesticides to Man Geneva
11-16 June	Study Group on International Standards of Drinking Water Geneva
11-19 June	Inter Regional Conference on Malaria for the Eastern Mediterranean and European Regions Athens
12-26 June	European Conference on Post Basic Nursing Education Peebles Scotland
18-23 June	Expert Committee on Organization of Medical Care Geneva
21-29 June	Expert Committee on Malaria sixth session Athens
2-7 July	Conference on the Teaching of Preventive Medicine, Zagreb
10-17 July	Expert Committee on Insecticides seventh session Geneva
23-29 July	Fifth European Seminar for Sanitary Engineers Helsinki
30 July 4 August	Study Group on Paediatric Education, Stockholm

The mention of manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature which are not mentioned. Proprietary names of such products are distinguished by initial capital letters.

FIELD TRIAL OF TYPHOID VACCINES¹

All vaccines and other biological materials produced for large scale public health application must be subjected to laboratory tests to ensure their potency since biological potency cannot be guaranteed simply by following a formula. Potency in this context means potency in man but for obvious reasons it must normally be measured by an effect in an animal. Many diseases occur naturally only in human beings and the response of animals both to the protective stimulus of a vaccine and to a subsequent challenge by virulent organisms may be quite different from that of man. It follows therefore that if a laboratory potency test is to have a practical value it must be shown to give results which can be correlated with the actual protection afforded to man. The importance of this requirement was not sufficiently recognized in the past, and it is only in the last two decades that the errors involved in applying the results obtained in experimental animals directly to man have to some extent been appreciated, although still not widely enough. As a result, some prophylactics in routine use for many years have never had their real protective value measured in man and therefore the value of laboratory tests on these vaccines can be estimated only on the basis of arbitrary assumptions. A good example of this is typhoid vaccine.

Typhoid vaccines have been in use since the beginning of this century and yet no strictly controlled trial in man acceptable by modern standards has ever been made. The earliest field trials which were carried

out by Wright and his colleagues in the British Army between 1904 and 1908 are open to criticism on the grounds that the vaccinated and unvaccinated groups were not comparable and that the differences observed in the incidence of typhoid might have been due to factors other than vaccination. Yet for many years these field trials were regarded as giving convincing proof of the effectiveness of typhoid vaccine.

During the First World War typhoid vaccines were extensively used in many armies and little doubt was left in the minds of observers that vaccination had a considerable effect in reducing the incidence of typhoid fever but no real estimate of the effectiveness of vaccines could be made on the basis of the figures available.

During the Second World War experience varied considerably: some vaccines were apparently highly effective whereas others appeared to be less so and a vaccine which according to some reports belonged to the former category was observed to break down from time to time and to give little or no protection. It gradually became clear from the accumulated observations that it was impossible to give any realistic figure as to the effectiveness of typhoid vaccines or to say which method of preparation was the best or which laboratory tests of potency bore a relationship to the effectiveness of the vaccine in man.

The tremendous surge of interest in public health problems in a world recovering from the ravages of the Second World War served to emphasize the enormous difficulties facing many countries in their attempts to control communicable diseases. One main difficulty was the great capital expenditure required

¹ Much of the information contained in this article was derived from unpublished reports of the Typhoid Commission of Y. *glaucina*.

to raise the standard of environmental hygiene and sanitation in order to control enteric diseases. Since it was inevitable that such expenditure would have to be spread over many years, countries in which typhoid fever remained a serious public health problem turned to vaccination as the principal method of control.

When the Government of Yugoslavia decided on this solution, it appreciated the urgent need for more reliable information as to what vaccine should be used, how its potency should be tested, and what results might be expected. Accordingly, the Government asked the World Health Organization for advice and guidance as to how this information might be obtained. The result of these consultations was a decision to carry out the first strictly controlled field trial of typhoid vaccines, some 50 years after their initial use.

The Yugoslav Government set up a Typhoid Commission to conduct the trial under the guidance of experts provided by WHO. The heavy burden of financing the work was borne to a very large extent by the Yugoslav Government, though grants were received from the World Health Organization and the United States Public Health Service².

After a survey of the incidence of typhoid fever in various parts of Yugoslavia the town of Osijek and its surroundings were selected as the place of the trial, since for several years past there had been a consistently high incidence of typhoid fever in this area, and since it was a part of the country which possessed excellent epidemiological, hospital, and laboratory staff and facilities.

The field trial was designed by the Typhoid Commission in consultation with the WHO experts. It had three principal aims: (a) to

determine whether the two typhoid vaccines selected for the test actually gave protection against typhoid fever, (b) to establish the superiority of one or the other, and (c) to decide whether or not the protection afforded to man could be related to the results of existing laboratory tests. The two vaccines selected were, first, an alcohol killed and alcohol preserved vaccine prepared according to the method of Felix, and second, a heat killed phenol preserved vaccine. These vaccines were produced at the Institute of Hygiene at Zagreb from pooled cultures of the same strains of *Salmonella typhi* (Ty 2). (The strains were supplied by A. Felix.) The control vaccine was prepared from locally isolated strains of Flexner dysentery bacilli and was preserved part in alcohol and part in phenol so that field workers would be unable to distinguish it from the two test vaccines.

The field work was organized under the direction of Dr B. Cvjetanović, Secretary of the Typhoid Commission. Extensive preparatory measures were undertaken including a pilot trial in an island off the Adriatic Coast, widespread propaganda and health education in Osijek and the surrounding district, and a thorough preparatory course of instruction for the doctors, health visitors and other workers who were to carry out the actual field work. So successful were these preliminary measures that approximately 36 000 individuals between the ages of 5 and 50 voluntarily took part in the trial, although many were fully aware that one of the vaccines used would give no protection against typhoid fever.

Vaccination began in the month of April 1954, two doses being given at three weeks interval. The vaccine administered to each individual was chosen in an entirely random fashion, and the field worker did not know which vaccine he had selected since its

² The total cost amounted to approximately \$133 500. Of this sum the Government and other institutions in Yugoslavia contributed approximately 33 million dinars (\$10 000). The grants received from WHO and the US Public Health Service were \$6500 and \$17 000 respectively.

identity was concealed by means of code letters to avoid any possibility of bias. A careful follow up was instituted with the co-operation of medical practitioners, nurses, school teachers and others. This included regular visits to the homes of the persons vaccinated during which the opportunity was taken to make additional epidemiological inquiries. Some of the subjects were visited one, two and three days after each inoculation to assess the severity of reactions. Furthermore, blood samples were taken at random from the three groups at various periods after vaccination in order to study the serological changes produced. At the end of the first year of the study, all those in the test groups received booster doses of the appropriate vaccine. An additional number of volunteers were vaccinated for the first time, and all groups were followed up for a further year, that is until the end of April 1956.

In the meantime the vaccines used were subjected to extensive laboratory tests at the Institute of Hygiene, Zagreb, the Lister Institute of Preventive Medicine in London, and the Walter Reed Army Medical Center in Washington. A batch of several litres of each vaccine was set aside for study under the auspices of the WHO Expert Committee on Biological Standardization with a view to the possibility of establishing one or the other of the vaccines as an international standard, if this were justified by the field and laboratory results. The advantages of having as an international standard a vaccine that has had its potency actually measured in the field needs no emphasis. These studies are still in progress.

The field trial proper has now been completed, but the results are still being analysed. It would therefore be unwise at this time to give precise figures or to draw final conclusions. However, preliminary analysis has shown that the three groups—alcohol, phenol and control—were comparable in every

respect, the only significant difference between them being the vaccine administered and the incidence of typhoid fever. The diagnosis of typhoid fever in the cases upon which the following remarks are based was made on the finding of a positive blood culture in association with clinical illness. Only such cases were accepted as proven. During the first year, that is to say in the period of primary vaccination, it was evident that the phenol vaccine was giving significant protection. This was especially marked in children under the age of 15, although the vaccine also appeared to give some protection to adults. When all age groups were considered together, it was not evident that the alcohol vaccine gave significant protection, but in the case of persons over the age of 15 the degree of protection appeared to be equivalent to that afforded by the phenol vaccine. The figures were however rather small. During the second year, that is to say after the administration of a booster dose, both vaccines appeared to give highly significant protection and appeared to be almost equally effective.

As a provisional conclusion, it may be stated that the phenol vaccine offers effective protection against typhoid fever given the conditions under which it was used after the primary course of immunization, and that this protection is increased after the administration of a single booster dose. The protection afforded by the alcohol vaccine during the period of primary immunization was doubtful, but after a reinforcing dose the vaccine appeared to be as effective as the phenol vaccine. It should be noted, however, that the final analysis of the results may modify these conclusions.

The fact that the same results were obtained after a booster dose with vaccines showing different protective values after the primary immunization should occasion no surprise, since it is well known that repeated doses of an antigen can to a large extent make up for deficient antigenic quality. This may be an

explanation of the observation that the alcohol vaccine apparently protected adults to some extent during the first year, whereas it did not significantly protect children. In this area typhoid has been endemic for many years and a considerable proportion of the adults can be assumed to have had previous experience of the antigen. It is possible therefore that the vaccine produced a booster effect rather than primary immunization which would have been the case in many of the children vaccinated.

The extensive laboratory studies are not yet complete, but sufficient information is available to suggest, first that the vaccines used in the trial were in fact, representative of their type, and, secondly, that the relative potency of the vaccines as measured in the laboratory depends perhaps more on the test used and the way it is performed than on the vaccine itself. It is already clear that further research is needed to determine which labo-

ratory test bears a relationship to the value of the vaccine when used in man. Plans are being made to promote this research.

This field trial may be taken as an example of the value of international co-operation. The initiative and support of the Yugoslav Government were of course indispensable but without the guidance and support of international experts and the provision of equipment both by the World Health Organization and by the United States Public Health Service, the Typhoid Commission would have found it difficult or even impossible to carry out the trial so effectively. Furthermore, international co-operation has made it possible not only to disseminate the findings of this experiment in the many countries which are faced with the same problem as confronted the Yugoslav Government, but also to plan future work on these problems in such a way as to ensure the comparability of overall results.

WATER POLLUTION IN EUROPE

Water pollution in Europe constitutes at the same time a series of national problems and an international one. A number of countries have a common interest in the great river systems of central Europe—the Rhine, the Rhone, the Danube, and some of their tributaries. The rivers of the British Isles, Iceland, Spain, Portugal, Greece, Turkey, and Scandinavia, however, do not belong to any great natural system, being separated from such systems by the sea or mountain ranges.

The rivers of Europe vary considerably with regard to size, characteristics of flow, climate of the lands traversed, human activities along their courses, and degree of pol-

lution. There is also great variety in the laws and regulations governing pollution in the organizations which exist for its control, in the public and official attitude to pollution, in the financing of the necessary works, and in the bodies responsible for purification operations. In some countries pollution is a very serious problem calling for rapid solution; in others it constitutes a local problem only; and in still others it is hardly regarded as a problem at all.

Countries in the first category sometimes find themselves confronted with a critical situation while industrial development has increased water pollution to an entirely unforeseen extent; the higher standard of

living of large population groups has raised the demand for potable water and for domestic and industrial supplies. Thus consumption of water increases as its quality deteriorates. The authorities of a number of countries are aware of this situation and even alarmed by it.

A survey of the conditions in certain European countries was carried out under the auspices of WHO which assists those concerned either in preparing legislation and regulations relating to water pollution or in revising existing provisions. In a forthcoming number of the *Bulletin of the World Health Organization* devoted to water sanitation. A key gives details of the results of this survey of 18 countries and discusses the conclusions to be drawn from it. The salient points are set out hereunder.

Pollution and economic development

Water is considered to be polluted when its composition or condition (temperature for example) is altered directly or indirectly as a result of human activities so that it is unsuitable for the various purposes for which the community requires it (drinking supply, industry etc.). Pollution is a consequence of industrialization and of the raising of living standards: it is the price which must be paid for improved domestic and urban hygiene, for greater material prosperity and mechanization. The problem is essentially one of industrial areas: it will become more and more urgent and no permanent solution is as yet in sight.

Admissible degree of pollution

There is no agreement among countries concerning the degree of pollution which may be considered as acceptable: opinions are widely divergent. Some maintain that the rivers and lakes must be restored to their pristine purity. There is at least one country

in which this view is supported by common law—if not by practice—which stipulates that the owner of the banks of a stream has the right to receive the water of that stream in its natural state. At the other extreme are those who are as yet completely unconcerned about pollution. Between these two extremes are other less sharply defined attitudes.

It is of course inevitable that civilization will change the state of rivers as it changes forests and landscapes. Nevertheless there is no reason why they should become barren and lose all their natural beauty. The disappearance of fish is generally a sign of excessive pollution and in France, the United Kingdom and Switzerland there are laws governing the pollution of waters in which fish live. This attitude may be justified to some extent since there is no doubt that, from some points of view, fish are good indicators of the degree of water pollution. However a price must be paid for progress and it seems that certain fishing grounds will have to be sacrificed in exchange for improved living conditions. Too strict laws in this regard may be quickly devalued by usage.

How then are we to settle this question? There must obviously be some compromise between what is desirable and what is possible between the demands of users of water and the requirements of those whose factories pollute it. In Germany for example it has been agreed that the River Emscher cannot be maintained in a state suitable for fish or as a source of drinking water whereas the water of the Ruhr in a neighbouring valley has to be kept sufficiently pure so that after appropriate treatment, it will be safe for drinking. Such variations in standards have been accepted in a number of countries. In Denmark there are "water courts" which decide how much purification of effluent is needed.

The problem is basically one of conflicting interests and the different interests must

therefore be reconciled—the more so since they are not purely selfish interests seeing that all are contributing to public welfare it is in the general interest that towns be clean and healthy, that industry be in a position to produce consumer goods and to provide work for inhabitants who, in turn, should be able to bathe in clean water to fish in streams in which fish can live, and to enjoy the beauties of nature. If these various legitimate interests are to be reconciled, there must be a compromise involving a certain amount of sacrifice and restriction, and, in some countries national legislation is necessary to impose such sacrifices and restrictions. It is this path that Germany, the Netherlands, Sweden, and Switzerland are following.

River authorities

Administrative decentralization whereby local authorities are made responsible for the regulations concerning pollution of water courses has not given satisfactory results *everywhere and at the present time the tendency is to establish a central fluvial authority responsible for the whole of a river or group of rivers.* In England the Thames Conservancy Board—set up as long ago as 1857—has authority for protecting the whole River Thames and its tributaries, from which London's water supply is mainly drawn. The same principle was adopted in Germany at the beginning of the century, and the Netherlands has recently followed this example in one or two cases. Since 1948, nearly all the rivers of the United Kingdom have been administered largely on the Thames model. In the United States of America also water pollution control commissions have been set up to cover whole river basins. It is probable that the trend towards regional control will increase in Europe.

Among the international rivers the Rhine constitutes a serious problem particularly

in the Netherlands which being poor in subterranean sources, must depend on the waters of a river which is polluted over its whole course by the waste waters of several countries and of many large industrial centres. In 1948 an international conference which met to discuss the River Rhine set up two committees—one to deal with fisheries and the other with the protection of the Rhine from pollution by salt, organic matter, phenol, oil sewage and industrial effluent.

Effects of pollution

Scientific analysis—chemical, biological and microscopic—is the only way of assessing the degree of pollution of a stream of determining the measures which must be applied, and of checking the efficacy of such measures.

Polluted water becomes de-oxygenated if the rate of oxidation exceeds the rate at which oxygen is re-dissolved from the air; the water becomes devoid of oxygen. Normal freshwater organisms (including fish) do not then survive. Instead anaerobic organisms flourish and produce gases such as methane, carbon dioxide, hydrogen sulfide and other evil-smelling sulfur compounds and the stream may then be fairly described as an open sewer. The oxygen impoverishment may be only partial, of course, and if it does not exceed a certain point, fish can live in the water. The oxygen content of water is believed to be the most important single criterion of pollution and attempts have even been made to classify rivers on this basis. According to this test a river is badly polluted if its dissolved oxygen does not reach 50% of its saturation value.

Dissolved oxygen is not however the only important factor. Rivers which are up to standard from the point of view of oxygen content may be polluted by metallic salts or other toxic substances. The effect of such poisons may vary according to the concentra-

tion of oxygen in the water (toxicity increasing as the oxygen content is diminished) the temperature of the river the pH and the presence of other ions which may diminish toxicity by precipitating the toxic substances. Salts of heavy metals are very toxic the lethal concentration of chromium zinc aluminium gold cadmium lead copper mercury and silver has been reported to be less than 1 p.p.m. for mercury and silver the figure has been stated to be less than 0.01 p.p.m. Fortunately contamination of European rivers by metal salts is confined to strictly limited areas. Such rivers are often also contaminated by sewage so that by tacit agreement they are considered as "industrial rivers" and no effort is made to reduce their toxicity.

At the present time it seems impossible to calculate on the basis of its chemical analysis the effect of an effluent on fish. Empirical lists of tolerated rates of pollution by various toxic substances such as are published in Belgium are no doubt interesting but all the factor involved (oxygen content temperature nature of diluting water etc.) must be determined and indicated in publications relating to this problem.

Many rivers are naturally of good bacteriological quality but very few can be used for drinking water without treatment. Moreover bacteriological pollution of water is dangerous for bathers. As a protective measure sewage discharges are sometimes chlorinated in the United States although some experts are of the opinion that such chlorination may interfere with the natural biological processes and sometimes through combination of the chlorine with certain substances in the effluent produce compounds which are very highly toxic for fish. In the United Kingdom this method of purification is very little used for this reason.

Substances which from the sanitary point of view would not be described as polluting elements (phosphates nitrates humus neut

ral salts etc.) may alter the environment with the consequent modification of the fauna and flora of a region. The work being done by investigators in many countries and the international conferences on this subject are evidence of the great interest which is now being taken in it.

Treatment of sewage and industrial effluents

Sewage is generally treated by different processes involving one or more stages. When simple sedimentation is insufficient, biological treatment is applied by means either of percolating filters or of activated sludge. In many countries an effort is being made to increase efficiency of the aeration process in biological treatment in order to lower costs. Chemical treatment of sewage is applied only in special cases on account of its high costs.

Industrial effluents may by their composition be unsuitable for admission to sewers they may corrode or obstruct the conduits or affect the biological decomposition which takes place in them. Possibly the paper and associated industries are those which cause most pollution in Finland Spain and the Scandinavian countries. Other industries responsible for large quantities of polluting matter are sugar beet factories dairy product establishments and gas and coke textile mining and metallurgical industries.

The ideal way of dealing with industrial effluent is to recover the polluting material in some useful form. Fibre has been recovered from waste water from the paper and associated industries and has been put to further use. Some of the stronger wastes can be evaporated to dryness and the residue used as fuel. In the sugar beet industry diffusion water is now often re-used. Gas and coke oven liquor can be extracted for the recovery of phenols. Copper can be recovered from its salts by reaction with iron filings. Treatment

of organic waste is generally biological anaerobic digestion of very concentrated wastes makes it possible to recover valuable fermenting gases

Standards for effluent quality

In some countries there are generally accepted standards for effluent quality, even though they may not be legal standards in the strict sense of the word. In the United Kingdom, for example effluent must not contain more than 30 p.p.m. suspended solids or have a five day BOD greater than 20 p.p.m. Other countries have adopted similar standards but still others have no regulations on the subject. Belgium and Germany prefer to have standards for river quality. In Germany pollution is admissible if it does not exceed the population equivalent of 30 people for each litre per second of flow

New problems

The nature of pollution and the problems it raises change with new developments in industrial processes and domestic habits. An example of the latter which is so far more or less confined to the United States is the use of the garbage grinder. The sewers into which the resulting refuse particles are poured now contain a suspension of organic matter which was formerly left in the garbage can (or dustbin) and disposed of in its solid state. The concentration of mineral and organic substances in the sewers is thus increased. If this practice becomes general in Europe cities which dispose of sewage without treatment will have to reconsider this practice. Another development of this type is the domestic use of synthetic detergents which are not decomposed by the biological treatment of sewage and may be toxic for man and for fish. Moreover such detergents sometimes produce a foam which is not broken down in the water and instead remains

in unsightly masses on the surface of the river over long distances. If these substances are neither oxidized nor absorbed into the stream, nor eliminated by percolation, they will get into water supplies. At the present time this question is being studied in the United Kingdom by a special committee composed of manufacturers, sanitary and water engineers, chemists and medical men.

With regard to industrial effluents, they will no doubt continue to increase to an unforeseeable extent. New products which give off liquid effluent are continually being manufactured—antibiotics and insecticides for instance.

The effects of the new polluting products used in agriculture have already been felt. Insecticides sprayed on crops and washed down by the rain may poison watercourses.

Conclusions

The rivers of the regions which were the first to be industrialized became polluted before there was any realization of the extent of the damage and the seriousness of the risks involved. Errors were committed through ignorance which could now be rectified only at enormous expense. Defective sewerage systems have been tolerated for years for lack of the financial means to improve them. These sad experiences should not be repeated and in areas which are in the midst of economic development the risks of pollution should be met by taking steps now with an eye towards preventing it.

In almost every country where pollution presents serious problems efforts are being made to deal with it. It will be interesting to see some years hence the results of the different measures being taken in different countries. Flexibility must be maintained in regulations concerning pollution: the problems change and evolve and it would be regrettable if too strict provisions should impede rather than aid their solution.

From the technical point of view the problem of treatment of domestic sewage is largely solved the existing systems are satisfactory and are not too costly and studies directed towards further improvements are in progress. The position with regard to industrial wastes is not yet quite so good. In addition to perfecting satisfactory treatment systems it is necessary to investigate ways of altering the industrial processes themselves so that the amount of resulting pollution is diminished.

International action

In view of the diversity of practice experience and regulations in the various European countries it would be inappropriate and even undesirable from the technical point of view to establish international standards applicable to all of them. Nevertheless there is much to be said in favour of standards of quality based on comparable tests. For example the empirical tests should be dispensed with particularly the tests for oxidiz-

able matter using potassium permanganate. Such tests vary according to the country using them (i.e. with respect to performance temperature time etc.) and the results are therefore not strictly comparable. It would be preferable to adopt a test designed to give an accurate figure for organic carbon. This type of test which is simple to perform would give more precise results and variations in technique would be of less consequence. This is one example of an improvement that could be easily realized through international co-operation.

In the control of water pollution which is a serious threat to all countries in the process of development, WHO particularly through its Regional Office for Europe offers valuable assistance by organizing seminars publishing studies on relevant subjects and serving as a clearing house for the exchange of scientific information. By these means it stimulates national action and encourages countries to follow each other's example in establishing standards which, though not necessarily identical are equally stringent.

MALARIA ERADICATION

A Progress Report

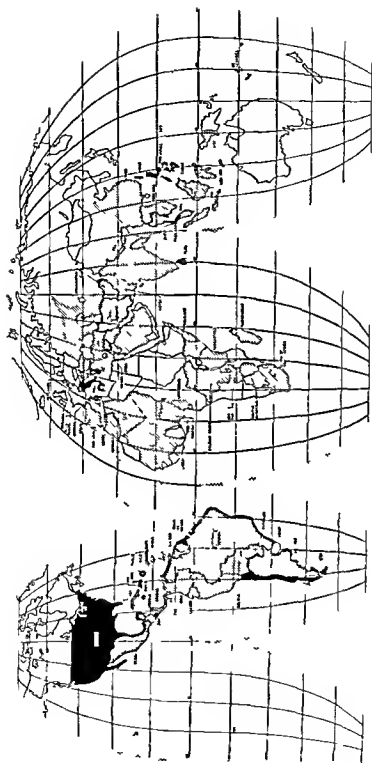
A new technical policy in malaria-control activities was initiated in 1955 when the Eighth World Health Assembly called for action aiming at world wide eradication of this disease¹. The change in emphasis from control to eradication was prompted by scientific necessity. It came with the realization that every effort must be made to utilize to the fullest the valuable weapon of residual action insecticides before the vector species have time to develop resistance to

these insecticides. The new strategy was supported by malariologists and public health administrators in the belief that eradication was not merely desirable but actually attainable.

In the year that has passed since the Health Assembly's decision significant advances towards the goal of malaria eradication have been made in many parts of the world. Changes in thinking regarding the ultimate aim have been translated into the formulation of long term plans and in a number of countries intensification and expansion of

¹Resolution WHA 8.30. *Off Rec WHA & Org* 1955 63 31

MALARIA ERADICATION IN THE WORLD



Countries which have achieved eradication of malaria since 1946

Countries with malaria eradication programmes

Countries with malaria control programmes

antimalaria activities have already resulted. In the account which follows an attempt is made to give an up-to-date review of the situation in some of the WHO Regions and of the Organization's recent work in this domain.

STATUS OF FIELD ACTIVITIES

Americas

In the Region of the Americas where the idea of eradication was first accepted at the XIV Pan American Sanitary Conference in October 1954 antimalaria efforts have received great impetus in all the countries where the disease is still a problem. A Co-ordination Office for Malaria Eradication Programmes in the Region was set up in 1955 with headquarters in Mexico City. At the beginning of 1956 there were 23 WHO/PASB malaria workers assisting in Latin American campaigns and this number is expected to increase considerably during the course of the year.

In Argentina the Dominican Republic Ecuador El Salvador Grenada Guatemala British Guiana Haiti Honduras Mexico St Lucia and Venezuela eradication programmes are already under way. Arrangements have been made to start a similar programme in Brazil in 1957 and in the same year present control activities in Bolivia Colombia Costa Rica Cuba Dominica Ecuador British Honduras Jamaica Nicaragua Panama, Peru Surinam Trinidad and Tobago may be converted into eradication campaigns.

No technical difficulties have been encountered thus far except in areas where the anopheline sub-genus *Aedes* is a vector. This species feeds out of doors and breeds in water collections among the leaves of certain neotropical plants with epiphytic habits known as Bromeliads. Malaria transmitted by this type of vector has been

brought under control in Trinidad and in some sectors of Brazil but it is necessary to find cheaper control methods than those employed up to the present time before large scale efforts can be undertaken.

Eastern Mediterranean Region

Plans for malaria eradication have been completed and programmes begun in five of the countries east of the Mediterranean—Iran Iraq Jordan Lebanon and Syria—and it is hoped to make coverage of this sub-region more complete by the inclusion of Israel and West Pakistan.

In this group of countries technical difficulties are presented by (a) the need to use antilarval measures for the control of malaria transmitted by *Anopheles sergenti* and *A. claviger* vectors peculiar to this region and (b) the development of some resistance to DDT in *A. sacharovi* in some localities in Lebanon.

No new cases of malaria have been reported in Cyprus since 1950.

Europe

A WHO consultant has been sent to Turkey to assist in the development of a plan for malaria eradication which would bring Turkey within the circle of the Eastern Mediterranean countries mentioned above and help to fill one of the gaps in the "defences" of this area.

Greece and Yugoslavia already have well advanced programmes of malaria eradication and during a conference on malaria held in Belgrade in December 1955² it was learned with satisfaction that three other Balkan Peninsula countries—Albania, Bulgaria and Romania—have accepted the same objective. It has been reported that a five year plan for malaria eradication is now under way in the USSR.

² See Chron. Wld Hlth O r 1956, 10, 73.

In Greece, where the development of insecticide resistance in the vector species has caused much concern, the malaria morbidity in 1955 was fortunately, no greater than in 1954. This may be attributable partly to the greatly reduced reservoir of infection in the country after seven years or more of extensive control partly to the special steps taken to combat the danger and partly to the fact that the meteorological conditions which prevailed in 1955 were to some extent unfavourable for the transmission of malaria. There is reason to believe that Greece may achieve eradication even though residual spraying with chlorinated hydrocarbon insecticides may have become largely ineffective.

In Yugoslavia there was a disturbing increase of malaria morbidity in Macedonia in 1955, but this was not thought to be due to any development of resistance to insecticides.

South East Asia

In Ceylon and Thailand malaria control has reached the stage where large areas are no longer sprayed but are subject to epidemiological surveillance. Following the visit of a WHO consultant to Afghanistan in 1955 that country is now willing and able to change the aim of its antimalaria programme from control to eradication. The Government of the Union of Burma has also agreed that from 1956 onwards antimalaria activities should have eradication as their goal and the Government of India in a note addressed to WHO has asserted the possibility 'of aiming at total eradication by stages'.

There are no special technical difficulties impeding progress towards malaria eradication in the countries of South East Asia except in Indonesia, where in some areas *A. sundanicus* has become resistant to insecticides and in other areas now avoids contact with the insecticides. It is hoped however

that ways and means will be found to achieve 'total eradication by stages' in Indonesia as in India, before it is too late.

Western Pacific Region

Taiwan is well on the way to complete eradication of malaria. The same objective has been accepted by the Philippines for its long term national programme. Both these countries are receiving substantial assistance from the United States International Co-operation Administration.

A need for inter country co-ordination and co-operation which do not stop at regional boundaries is deeply felt by the countries of the Western Pacific Region in their anti-malaria activities. The WHO Regional Office is attempting to meet this need through the organization of inter country meetings of malaria workers and public health administrators. Two such meetings have been held in 1956 one in Cambodia, and the other in Sarawak.

There is every indication that the countries of the Western Pacific Region wish to work towards malaria eradication and it seems likely that this aim may be achieved in most territories of the Region by means of residual spraying alone, although in some cases additional measures may be found necessary.

THE ROLE OF WHO

The World Health Organization has taken active steps to carry out the duties laid upon it by the Eighth World Health Assembly when it decided that the Organization should take the initiative provide technical advice and encourage research and co-ordination of resources in the implementation of a programme having as its ultimate objective the world wide eradication of malaria.

First WHO has attempted to obtain an accurate assessment of insecticide resistance

in some vector species by sending two entomologist consultants to Greece Indonesia Lebanon and Saudi Arabia to make on the spot investigations. The existence of insecticide resistance in anophelines has been confirmed in all the places where it had been reported.

Three further cases of insecticide resistance in vector species have been reported since this investigation was made: one in *A. quadrimaculatus* in the Mississippi valley in the USA, another in *A. sundanicus* in Indonesia and the third in *A. gambiae* in Northern Nigeria. WHO entomologists were instrumental in discovering the resistance in the last two cases.

Technical advice has been given upon request to governments by WHO expert personnel engaged in field projects and by regional malaria advisers. In addition the Organization has provided short term consultants to help a number of countries to plan antimalaria activities. Afghanistan the Cameroons Ethiopia, French West Africa Indonesia Iran Iraq Jordan Lebanon Somalia Sudan Syria and Togo. Consultative visits were also paid to the Gold Coast Kenya Nigeria Somaliland Protectorate Southern Rhodesia Tanganyika and Zanzibar.

Action against malaria has been stimulated by various meetings and conferences which WHO has convened. Among such meetings have been a course on insect borne diseases control held in Rome in June 1955, the previously mentioned malaria conference in Belgrade and the two inter-country conferences in the Western Pacific Region and the Second African Malaria Conference³ held in Lagos Nigeria.

WHO is continuing to encourage and co-ordinate research on relevant problems particularly on insecticide resistance in anophelines methods of treatment for large

populations and the control of malaria transmitted by *A. gambiae* the chief vector in tropical Africa.

For the last seven years UNICEF has been giving substantial support to WHO assisted and other antimalaria programmes and early in 1956 it allocated a considerable sum to be spent on eradication activities in nine countries in the American Region and four in the Eastern Mediterranean.

Under the terms of the resolution adopted by the Eighth World Health Assembly WHO has established a special account⁴ to consist of voluntary contributions from governmental and private sources and to be administered by the Organization for furthering the purpose of world wide eradication of malaria. So far four contributions—offered by China Brunei Germany and Iraq—have been accepted by the Committee on Malaria Eradication to which such authority was delegated by the WHO Executive Board. The special account now has about \$66 000 to its credit which will enable the Organization to give emergency help though in small measure to countries requiring immediate financial technical and other assistance. However present resources can meet only a small fraction of the total needs for international assistance in malaria eradication programmes.

In the long run eradication will prove a financial saving. An eradication campaign lasting eight years—a period which includes five years of active surveillance—involves approximately the same expenditure per person as seven years of routine control. Those countries which are still applying control measures only should be urged to accept eradication as their objective not only because of economic considerations but also because the continued use of residual insecticides year after year may give rise to resistant vector strains.

CIRRHOSIS OF THE LIVER AND ALCOHOLISM

In the absence of any general international statistics on alcoholism morbidity, an approximate estimate of the incidence of alcoholism may be based on the statistics relating to deaths due to diseases of predominantly alcoholic origin. As the Alcoholism Sub Committee of the WHO Expert Committee on Mental Health emphasized, during a discussion on alcoholism statistics under present conditions, the evolution of the mortality from alcoholism¹ and from 'cirrhosis of the liver' must be considered as the sole useful statistical element [even though] these figures represent only a minimum fraction of alcoholism in general (mortality and morbidity).¹

A recent WHO statistical publication² includes a number of tables showing mortality from cirrhosis of the liver and from alcoholism in certain countries. Several of these tables provide statistical series—either absolute figures by sex or the rates per 100 000 persons of each sex—which in the case of certain countries date back to the early years of this century. Others covering the period 1950-54 give absolute and proportional figures for mortality, by sex grouped under the following heads: cirrhosis of liver with mention of alcoholism; cirrhosis of liver without mention of alcoholism; alcoholism and alcoholic psychosis.

To show exactly what kind of service the publication of such data can render, it might be desirable to demonstrate the advantages and shortcomings of using mortality statistics to determine alcoholism morbidity by comparing the results of this method with those obtained from other available indices and statistical procedures.

Value of alcoholism mortality statistics

When an attempt is made to assess the importance of alcoholism in a country, statistics on alcohol consumption are naturally the first source to be consulted. However, the Alcoholism Sub Committee in its second report³ pointed out that only very limited conclusions can be drawn from a comparison of *per capita* consumption rates. In some countries, for example, 37% of the alcohol is consumed by 2% of the population.⁴ Unfortunately, all official statistics are based on 'crude' rates; it would be impossible to obtain 'real' rates (calculated on an estimate of the number of actual consumers) in the absence of data from periodic surveys which have so far been lacking. Moreover, *per capita* consumption rates cannot be considered as 'indicating a high or low degree of alcoholism or changes in the incidence of alcoholism. It would require *per capita* rates of extraordinary magnitude—as a matter of fact of a magnitude which has never come within the range of observation—to permit of such inferences'.³

Neither can the sampling method be used for the assessment of alcoholism since, according to the WHO experts, the work and expenditure involved would be out of all proportion to the usefulness of the information which might be obtained. In some localities, of course, where practically all the alcoholics are known to the authorities, country incidence can be calculated by extrapolation. However, such cases are exceptions.

A working group entrusted by the Alcoholism Sub Committee with the task of examining alcoholism statistics and surveys of

¹ *Wld Hlth Org techn Rep Ser* 1952, 48: 14.
² *Epidem. vital Statist R p* 1956, 9: 172-242.

Wld Hlth Org techn Rep S 1952, 48: 18-20.
Wld Hlth Org techn R p Ser 1954, 84: 14.

TABLE I MORTALITY FROM ALCOHOLISM BY SEX IN 1921-25 AND 1951-54

Crude rates per 100 000 population at each sex

T = total both sexes

M = male

F = female

Country	Yearly average						Quotient 1951-54 1921-25		
	1921-25			1951-54					
	T	M	F	T	M	F	T	M	F
Africa									
Union of South Africa (European population)	2.2	3.6	0.8	1.0 ^a	1.5	0.4	0.5	0.4	0.5
America									
Canada (incl. Yukon and N.W. Territories)	1.7	3.0	0.2	0.9	1.5	0.3	0.5	0.5	1.5
United States									
All races	2.9	5.1	0.5	1.7	2.8	0.5	0.6	0.5	1.0
White	2.9	5.2	0.5	1.5	2.6	0.4 ^a	0.5	0.5	0.8
Non-white	2.9	4.6	1.1	3.0	4.7 ^a	1.4	1.0	1.0	1.3
Asia									
Japan	0.6	1.5	0.1	0.2 ^a	0.4 ^b	— ^b	0.3	0.3	—
Europe									
Austria	0.3	0.6	0.1	1.4	2.5	0.5	4.7	4.2	8.0
Belgium	2.3	3.6	0.9	0.9	1.6	0.3 ^a	0.4	0.4	0.3
Denmark	1.8	3.4	0.3	0.3	0.8	0.1 ^a	0.2	0.2	0.3
Finland	2.6 ^d	5.3 ^d	0.3 ^d	0.3	0.5	—	0.1	0.1	—
France	2.1	3.3	1.1	7.9	12.0	4.1	3.8	3.6	3.7
Germany (territory at the time)	0.6 ^f	1.2 ^f	0.1 ^f	0.2	0.5	0.1 ^a	0.3	0.4	1.0
Ireland	0.6 ^e	1.1 ^e	0.2 ^e	—	0.1	—	—	0.1	—
Italy	3.0 ^b	5.2 ^a	0.9 ^a	1.7	3.1	0.4	0.6	0.6	0.4
Netherlands	0.3	0.6	0.1	0.5	0.9	0.1	1.7	1.5	1.0
Norway	0.4	0.7	0.1	0.3	0.6	—	0.8	0.9	—
Portugal	4.0	7.0	1.2	2.9	4.8	1.0	0.7	0.7	0.8
Spain	1.8	2.9	0.7	0.9	1.4 ^a	0.4	0.5	0.5	0.6
Sweden	0.3	0.6	—	0.3 ^g	0.7 ^g	— ^g	1.0	1.2	—
Switzerland	10.3	17.8	3.4	5.0	9.1 ^a	1.1	0.5	0.5	0.3
United Kingdom England and Wales	0.4	0.6	0.2	0.1	0.1	0.1	0.3	0.2	0.5
Scotland	1.5	2.2	0.7	0.3	0.6	0.1	0.2	0.3	0.1
Northern Ireland	0.7 ^e	1.2 ^e	0.1 ^e	0.1	0.2	—	0.1	0.2	—
Oceania									
Australia (incl. full blood Aborigines)	2.7	4.4	0.9	2.4	3.9	0.9	0.9	0.9	1.0
New Zealand (excl. Maoris)	1.7	3.0	0.4	1.0	1.7	0.4	0.6	0.6	1.0

1951-53
1951-52
19531925-30
1931-35
1932-351922-25
1924-25
1951

1952-53

TABLE II MORTALITY FROM CIRRHOSIS OF LIVER BY SEX IN 1921-25 AND 1951-54

Crude rates per 100 000 population of each sex

T = total both sexes M = male F = female

Country	Yearly average						Quotient 1951-54 1921-25		
	1921-25			1951-54					
	T	M	F	T	M	F	T	M	F
Africa									
Union of South Africa (European population)	40	60	19	79 ^a	108 ^a	51 ^a	20	18	27
America									
Canada (excl. Yukon and N.W. Territories)	26	31	21	47	58	35	18	19	17
United States									
All races	73	93	52	102	136	69	14	15	13
White	73	94	52	106	142	71	15	15	14
Non white	68	85	51	71	88	54	10	10	11
Asia									
Japan	67	87	47	76	92	61	11	11	13
Europe									
Austria	102 ^b	138 ^b	68 ^b	120	181	87	12	13	10
Belgium	117	128	107	60 ^c	75 ^c	46 ^c	05	06	04
Denmark	17	25	09	61	58	65	38	23	72
Finland	15 ^d	17 ^d	13 ^d	26	31	22	17	18	17
France	129 ^e	164 ^e	96 ^e	246	314	183	19	19	19
Germany (territory at the time)	57 ^f	85 ^f	31 ^f	99	135	66	17	16	21
Ireland	31 ^g	45 ^g	16 ^g	19	25	13	08	06	08
Italy	124 ^h	185 ^h	64 ^h	132 ^a	190 ^a	77 ^a	11	10	12
Netherlands	37	44	30	31	35	27	08	08	09
Norway	17	23	10	32	36	29	19	16	29
Portugal	115	186	69	188 ⁱ	216 ⁱ	135	16	15	20
Spain	153	182	126	100 ^a	113 ^a	87 ^a	07	06	07
Sweden	20	28	15	32 ^a	35 ^a	29 ^a	16	13	19
Switzerland	75	115	38	119 ^a	190 ^a	52 ^a	16	17	14
United Kingdom England and Wales	48	66	31	26	30	27	05	05	07
Scotland	33	44	23	34	40	28	10	09	12
Northern Ireland	21 ^g	31 ^g	12 ^g	23	24	22	11	08	18
Oceania									
Australia (excl. full blood aboriginals)	54	71	36	46 ^a	61 ^a	31 ^a	09	09	09
New Zealand (excl. Maoris)	31	37	24	29	33	25	09	09	10

^a 1951-53^b 1938^c 1952-53^d 1938-38

1920-30

1932-35

^e 1922-25^h 1924-25ⁱ 1952-54

alcoholism and of alcohol consumption advised national health administrations to study the formula established in 1940 by Dr E M Jellinek of the Yale Institute for Alcohol Studies which the group considered as the only method available of making comparative evaluations of alcoholism. Space does not permit of a detailed description of this method of evaluation which in any case is to be found in two numbers of the *Technical Report Series*⁴. Suffice it to mention that in applying the formula each country must have certain data at its disposal including the total number of deaths attributable to a disease such as cirrhosis of the liver and the percentage of cases in which alcoholism is the original cause. This percentage varies according to the alcoholic drink consumed and the type of drinker and so far it has been accurately determined in only a few countries.

In the near future therefore it may be possible to use the statistics now available on mortality from "alcoholism" and "cirrhosis of the liver" to make an approximate estimate of the incidence of alcoholism in various countries provided that the missing elements are computed and their faultiness taken into account. According to the Alcoholism Sub-Committee "certification of death from acute and chronic alcoholism is notoriously unreliable as physicians are generally reluctant to embarrass families through certification of the death of a family member from this cause"⁵. Moreover it must be remembered that "in some cases a fall in the curve of deaths from acute and chronic alcoholism has reflected progress in the treatment of those conditions rather than a fall in the incidence of alcoholism"⁶.

It is necessary then to resist the temptation to consider these statistics as having an intrinsic value they should in fact be regarded as instruments to establish the validity of certain points.

The following information is based on statistical data reproduced in the *Epidemiological and Vital Statistics Report*

Deaths from alcoholism

Between the periods 1921-25 and 1951-54 most countries experienced a drop in the crude rates of mortality from "alcoholism" (Table I) which appears to have been at least partly due to advances in therapy as has been previously noted.

Changes in certification may also account for some of the recorded decrease. According to the *International Statistical Classification of Diseases, Injuries and Causes of Death*⁷ alcoholism mortality should include all deaths from diseases attributable to acute or chronic ethylism however alcoholic cirrhosis alcoholic psychosis and acute alcoholic poisoning are classified separately. The heading "alcoholism" therefore covers only part of the deaths due to acute or chronic alcoholism without mental disorder.

It is obvious also that "alcoholism" is often not mentioned on death certificates in cases where acute or chronic alcoholism was the real cause of death even though the apparent cause may have been acute pulmonary disorder cerebral haemorrhage suicide or a motor accident. It should be noted that before the adoption of the 1948 revision of the International Lists of Diseases and Causes of Death even when "alcoholism" was mentioned the "underlying cause" was established on the basis of criteria which varied according to period and country.

The greatest caution should therefore be observed in inferring that the number of deaths actually due to alcoholism has decreased. In fact the figures for mortality from cirrhosis of the liver seem to give little justification for optimism.

Deaths from cirrhosis of the liver

The data given in Table II are perhaps more reliable. They show that since 1921-25 the number of deaths from cirrhosis of the liver appears to have risen in the majority of countries. Thus apparent deterioration is attributable partly to the aging of the popula-

W.H.O. *Wkly Rep* 1951 42, 10-21 1952 43 14-26

W.H.O. *Wkly Rep* 1951 42, 21

W.H.O. *Wkly Rep* 1952 43, 3

World Health Organization (1950) *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*, Geneva, Vol. I, p. 113-166

tion and partly to improved diagnosis or greater accuracy in certifying causes of death. Nevertheless investigations should be made to determine whether the disease has really become more prevalent in some countries and, if so, whether the increase is due to cases

of alcoholic cirrhosis. It is to be hoped that a comparison of available data with the results of investigations made by national health administrations or undertaken in WHO health demonstration areas will clarify this point.

MORTALITY FROM SUICIDE

A study recently published by WHO¹ presents information on the mortality rate from suicide in certain countries, the rates by age and sex, and the trend of death rates from suicide by age and sex. It is believed that these mortality statistics are reasonably comparable. However, factors which cannot be measured, such as the proportion of deaths from suicide which have not been attributed to that cause—owing to failure to recognize it or reluctance to certify a death as suicide in view of the stigma attached to this act—should be kept in mind in interpreting the figures.

The crude mortality rates from suicide per 100 000 population, for both sexes and for males and females separately, for selected countries are given in Table I. The latest available data have been used in compiling this table.

The highest death rates from suicide in both sexes are seen in Japan, Denmark, Austria, and Switzerland, and the lowest rates in Ireland, Northern Ireland, Chile, Scotland, and Spain. The figures for Chile and Spain are not as recent as those for other countries, but when a comparison is made on the basis of statistics for 1951 or 1953, Chile and Spain remain among the countries with the lowest death rates from suicide. Within the USA the rate for the white population is almost three times that of the non-white population.

These crude death rates are influenced by the age composition of the population as well as by the actual incidence by age and

TABLE I. MORTALITY FROM SUICIDE
FOR ALL AGES PER 100 000 POPULATION 1954

Country	Both sexes	Male	Female
Union of South Africa (European population only)	11.9	19.4	4.4
Canada	7.3	10.9	3.5
Chile*	4.6	7.3	2.1
USA			
All races	10.1	16.1	4.3
White	10.8	17.2	4.6
Non-white	3.8	6.4	1.3
Ceylon	8.0	10.2	5.5
Japan	23.4	29.2	17.8
Austria	23.1	33.1	14.4
Belgium	13.8	20.5	7.3
Denmark	23.3	31.4	15.4
England and Wales	11.4	14.9	6.1
Finland	18.9	31.2	7.6
France	15.8	24.7	7.4
Germany (Federal Republic)	19.3	26.6	12.8
Ireland	2.0	3.2	0.8
Italy	6.4	9.2	3.9
Luxembourg	10.4	15.1	5.8
Netherlands	6.2	8.2	4.3
Northern Ireland	3.5	5.3	1.7
Norway	7.4	12.2	2.7
Portugal	10.2	15.4	5.3
Scotland	5.9	8.3	3.7
Spain	5.9	9.1	2.9
Sweden	18.6	28.2	9.0
Switzerland	22.6	33.9	12.0
Australia	10.9	15.6	6.0
New Zealand (excluding Maoris)	6.9	13.4	4.4

sex. Therefore the age specific death rates for each sex shown in the WHO study are better suited for comparative purposes than the crude rates perforce presented here because of limitations of space.

Table I also shows that in all of the countries included therein the male rate for deaths from suicide is higher than the female rate. The ratio is roughly three to one but it varies from more than four to one in Norway to less than two to one in Japan.

In males the highest death rate from suicide in recent years was found to occur generally in old age (70 years of age and over). In females the highest rates usually were seen in younger ages (the fifth and sixth decades) although in many countries rates were highest in the aged. It is interesting that in the USA the peak rates occur at a younger age in the non white population than in the white population.

The WHO study also provides data on the trend of the death rate from suicide in certain countries beginning with the opening of the twentieth century and covering the periods before and after each World War the years around 1930 (which saw the great

economic depression) and the present period. The rates are shown for each sex for three broad age groups encompassing adulthood and old age. Although there are some gaps in the data it is clear that in most countries the highest mortality rate from suicide occurred in the period around 1930. It is interesting that in two of the three female age groups the peak mortality occurred in the period preceding the Second World War. It is also worthy of note that within each country the trends for the age and sex groups studied were not necessarily similar. For example in Denmark the mortality rate from suicide in females aged 20-34 years was more than three times higher in the period 1947-49 than in the period 1920-22. On the other hand the rate in males aged 55 years and over actually was lower in 1947-49 than in 1920-22.

The study does not attempt to relate these interesting differences among countries and variations within countries to the cultural, social and economic factors believed to be related to suicide but supplies the mortality data essential for those wishing to pursue such an inquiry.

International Co operation in Nutrition

A recent number of the *Proceedings of the Nutrition Society* (Vol 15 No 1) published in Cambridge, England, is devoted in part to the nutritional work of FAO, WHO and UNICEF being an account of the 96th scientific meeting of the Society which featured a symposium on this subject. It contains the following articles: "International co-operative activities in the field of nutrition: an introductory statement" by P. Dorolle, Deputy Director-General of the World Health Organization; FAO and nutrition by W. R. Aykroyd, Director Nutrition Division, FAO; "WHO and nutrition" by R. C. Burgess, Chief Nutrition Section, WHO; "UNICEF assistance for child nutrition" by the Secretariat of UNICEF; "Nutrition and home-economics programme in Egyptian villages" by Mary A. Ross, FAO Home Economist, FAO Sindbis Project, Garden City, Cairo, Egypt; and "Nutrition work in Burma past and present" by S. Postmus, Senior WHO Officer Nutrition Project, Rangoon, Burma.

tion and partly to improved diagnosis or greater accuracy in certifying causes of death. Nevertheless investigations should be made to determine whether the disease has really become more prevalent in some countries and if so, whether the increase is due to cases

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Non white	3.8	6.4	1.3
Ceylon	8.0	10.2	5.5
Japan	23.4	29.2	17.8
Austria	23.1	33.1	14.4
Belgium	13.8	20.5	7.3
Denmark	23.3	31.4	15.4
England and Wales	11.4	14.9	8.1
Finland	18.9	31.2	7.6
France	15.8	24.7	7.4
Germany (Federal Republic)	19.3	26.6	12.8
Ireland	2.0	3.2	0.8
Italy	6.4	9.2	3.9
Luxembourg	10.4	15.1	5.8
Netherlands	6.2	8.2	4.3
Northern Ireland	3.5	5.3	1.7
Norway	7.4	12.2	2.7
Portugal	10.2	15.4	5.3
Scotland	5.9	8.3	3.7
Spain	5.9	9.1	2.9
Sweden	18.6	29.2	9.0
Switzerland	22.6	33.9	12.0
Australia	10.9	15.6	6.0
New Zealand (excluding Maoris)	8.9	13.4	4.4

developed countries and that special precautions are therefore necessary in meat processing plants. It is of interest to note that the method of canning hams by the pasteurizing process is considered to be undesirable if permitted the cans should bear clear instructions regarding their storage.

Poultry should be slaughtered at special centres especially if as the report recommends evisceration is carried out soon after slaughter.

Antibiotics and hormone preparations are sometimes used in the feeding of poultry with possible public health implications and the results of research in this field are awaited with interest.

Control of eggs should include all kinds of eggs offered for sale. Clean production methods however should not include the washing of eggs as this removes a layer of protective albumin. Proper control should be exercised over the manufacture of powdered dried eggs and an upper limit for total bacteria count per gramme should be established.

Fish should be inspected at the ports or at the inland distribution centres and markets and control should extend throughout the line of distribution until it reaches the consumer. Shellfish growing areas should be properly supervised especially where the beds are subject to sewage pollution. Outbreaks of typhoid fever and other forms of salmonellosis have resulted from the consumption of contaminated shellfish. In some areas fish is buried for a few days or allowed partially to decompose before salting—to suit local tastes as to colour, flavour and texture—and consumption of such fish has resulted in salmonella and staphylococcal infections.

Vegetables and fruits that are offered to the consumer without having been washed or treated with an effective germicide present a special danger. Special measures of control are necessary where sprayed sewage or sewage effluent and toxic insecticides are used to improve the growth of vegetables and fruit. The use of weak chemical solutions such as potassium permanganate

for disinfecting is ineffective and should be strongly discouraged. However a solution of chloromelamine with wetting agent added and buffered to pH 3.8 has been found to be effective in destroying bacteria and cysts of *Entamoeba histolytica* on leafy vegetables.

In addition to these observations on and recommendations for the hygienic protection of foods particularly susceptible to contamination the report also stresses the importance of laboratory control.

Following inspection to enforce compliance with legal requirements, the collection and laboratory examination of specimens of products is most valuable. It is recommended that all unsatisfactory results reported by the laboratory be followed up immediately to ensure compliance with legal standards.

Problems in food handling procedures

Most foodstuffs will eventually be processed or stored before reaching the consumer and the report reveals some interesting but improper and dangerous procedures. For instance in certain northern areas the pasteurization of milk is discontinued during the colder seasons when spoilage is not a serious problem elsewhere lead shot is introduced into the gullets of poultry to increase the weight, which brings in the element of fraud and the hazard of lead poisoning. In other areas canned hams are only partially preserved in an effort to produce a certain flavour. Moist foods such as fish are wrapped in newspaper and contamination ensues from the coloured inks and in the tropics it is customary to throw a handful of straw into the top of filled milk-cans to prevent splashing during transportation.

Contamination of food during serving presents the same problem of improper handling procedures and, in view of the wide range of possible situations it is necessary to establish food hygiene techniques which are adaptable to different conditions.

The principles of food hygiene in commercial and communal feeding are the same as in any other type of food handling but they need to be applied with particular care.

Reports of Expert Groups

FOOD HYGIENE

The importance of heating and drying foodstuffs to prevent spoilage and to preserve food values was recognized by man long before he understood the bactericidal and bacteriostatic action of these processes. With the passage of time, advances have been made and processes of preservation such as sterilization, pasteurization and freezing have been developed. Nevertheless, the vast amount of ill health and human suffering resulting from the consumption of infected and contaminated food still remains a public health problem of world wide importance. While it is manifestly impossible to establish uniform sanitation habits applicable to all countries with their varied cultural patterns and customs it is possible to establish certain general principles of food hygiene which could be adapted to national needs by public health authorities.

The task of formulating these general principles is undertaken in the fourth report¹ of the WHO Expert Committee on Environmental Sanitation. In addition the problems of food hygiene peculiar to various areas of the world are reviewed and guidance for the planning of food hygiene programmes in areas at different stages of development is given.

Principles in the control of disease-carrying foods

Many foods may be the vehicle of disease and the report discusses in some detail the more important i.e., milk and milk products

meat fish, including shellfish and vegetables and fruits commonly eaten raw.

Milk and milk products owing to their importance in the diet of man and to their disease conveying potentialities should receive strict attention in all food hygiene programmes. Sterilization and pasteurization while affording a measure of protection must not be relied on alone. Equally important aspects are the health of the live animal and the hygiene of production and subsequent handling. It is recognized in the report that in under developed countries the general adoption of the processes of controlled heat treatment of milk may present difficulties of an economic administrative and technical nature but it is recommended that these processes should be carried out as soon as possible.

Meat that is freshly cooked is rarely implicated in outbreaks of food poisoning in highly developed countries whereas the reverse appears to be the case in under developed regions. Public health authorities working in co operation with veterinary officers should ensure the closest supervision of all meat supplies including inspection at point of slaughter and at all stages until delivery to the consumer. Abattoirs should be properly designed and constructed and provided with adequate facilities.

The feeding of pigs with uncooled garbage is perhaps the most important link in the chain of trichinosis infection and is a vulnerable point on which the sanitarian can concentrate his control efforts.

Statistics indicate that processed and made up meat is responsible for the majority of food poisoning outbreaks in certain highly

Wild Hlth Org. techn. Rep. Ser. 1956. 104. 28 pages.
Price 1/9 \$0.30 or Sw fr 1.— Published in English, French,
and Spanish.

RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF TRACHOMA

The reduction of the incidence of trachoma and the eventual elimination of this disease as a public health problem have long been sought, and it can be safely asserted that definite advances have taken place over the last few years both in laboratory research and in control. These advances are reviewed and evaluated and guide lines for further study are established in the second report of the WHO Expert Committee on Trachoma.¹

Etiology

The cause of trachoma is generally believed to be an agent of the psittacosis lymphogranuloma group of atypical viruses at present designated as *Chlamydo-oon trachomatis*. The report gives recognition to the importance of numerous claims for temporary cultivation of this agent but expresses the view that convincing evidence is lacking that cultivation in series or in quantity has been accomplished. Progress is noted in the recognition and definition of viruses causing other non trachomatous follicular conjunctivitis sometimes confused with trachoma.

It is recommended that further investigations be undertaken to cultivate the virus of trachoma by some workable and generally applicable method establishing without doubt that the virus being cultivated is the real cause of trachoma. The report proposes that virologists and ophthalmologists collaborate as closely as possible in this work and recommends the adoption of the following laboratory procedure: (1) demonstration of Halberstaedter Prowazek (HP) inclusion bodies; (2) production in monkeys and apes of experimental trachoma capable of transmission in series; and (3) demonstration of serological relationship of the cultured virus to trachoma. While deploring the necessity

for human inoculation the report stresses that for the time being the final proof must rest on the production of typical trachoma in human volunteers.

Diagnosis

To clarify previously conflicting opinions among specialists in different countries on the diagnosis of trachoma the report gives a definition of the disease and sets forth criteria of diagnosis including differential diagnosis. An annex presents in tabular form the differential diagnosis of non trachomatous follicular conjunctivitis.

Epidemiology

The report discusses in some detail the differences reported in various regions of the world in the epidemiological and clinical picture of trachoma and summarizes the principal variations as follows: age of onset; clinical evolution; frequency of spontaneous cures; frequency of disabling sequelae and response to treatment.

The factors involved in determining the variations in incidence and type of trachoma found in a country are considered. These include the presence of associated bacterial conjunctivitis which is important in determining differences in clinical evolution, particularly in the frequency and severity of disabling sequelae. It is noted in the report that in the present state of our knowledge it is impossible to say whether or not different strains of the causative agent exist which could be in part responsible for the differences observed in the chemical and epidemiological picture.

With regard to reported variations in response to treatment these may have been due in a certain percentage of cases to the long period necessary for the disappearance of clinical symptoms after the completion of treatment. For this reason it is considered

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because of the special risks involved, as the report emphasizes

One careless food handler or one human carrier of disease preparing food at home will jeopardize the health of only a small number of persons mainly members of the family. When one such person works in the kitchen of a restaurant, hospital, factory, canteen, school or other place where meals are supplied to many people, the number of potential victims is correspondingly greater.

A special case of commercial feeding arises in air travel which poses a number of unique problems. Instances have been reported of entire air crews having been taken ill with food poisoning simultaneously in flight with serious implications for the safety of the passengers and aircraft.

Food hygiene programmes

In under developed areas food hygiene programmes are usually faced with "problems of public inertia and apathy, with woeful sanitary conditions and practices and with shortage of adequate means. A start however must be urged, and the first step should be the development of a trained field staff followed by the complementary services, such as laboratories and training institutes. The report emphasizes the desirability of developing food hygiene programmes within the context of a developing general public health programme.

In rapidly developing areas the situation is usually encouraging—inertia has been overcome, poverty, ignorance and disease are on the wane. Food hygiene programmes must keep pace with these changes, more advanced training should be given to field staff, health education of the public should be improved, research work should be developed and higher standards should be set for food production and processing.

Many highly developed areas have now reached a point where the most needed elements of food hygiene are in full operation. The general objective in such an area is to maintain an effective economical programme and to bear in mind that eternal vigilance is the price of safety.

Suggested general fields of activity are given in the report as a guide in the establishment of new programmes or in the revision of existing programmes in food hygiene.

(1) Clean food handling methods are a primary requisite and the practice of workers performing individual food handling operations should be studied.

(2) Field men should be on the alert for the improper use of chemicals in food establishments.

(3) The proper control of vermin and rodents is a necessary food hygiene activity.

(4) Only healthy animals should be used in the production of food.

(5) Reporting, investigating and publicizing outbreaks of food poisoning or other food borne diseases are means of creating official and public interest in food hygiene programmes.

Health education both of the public and of those engaged in the food industry should not be restricted to one way methods such as radio, television, lectures, films, and newspaper articles, but should be as wide as possible and include such activities as discussions, interviews, drama and live demonstrations. Local participation in programmes of food hygiene can often be enlisted by the appointment of advisory committees.

Legislation should be flexible enough to keep pace with scientific and technical advances. For this reason it is suggested that it is an advantage to have the basic legislation embodied in statutes and to set forth the more detailed and technical provisions in regulations made by those having the statutory power to do so.

The report points out that very careful attention must be paid to the education and training of personnel, particularly the health inspectors on whom the bulk of the work in promoting food hygiene will fall. The duties of health inspectors include the inspection of foodstuffs, food sampling, the inspection of premises in which food is handled, the education of food handlers and the investigation of outbreaks of food borne disease.

RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF TRACHOMA

The reduction of the incidence of trachoma and the eventual elimination of this disease as a public health problem have long been sought and it can be safely asserted that definite advances have taken place over the last few years both in laboratory research and in control. These advances are reviewed and evaluated and guide lines for further study are established in the second report of the WHO Expert Committee on Trachoma.¹

Etiology

The cause of trachoma is generally believed to be an agent of the psittacosis lymphogranuloma group of atypical viruses at present designated as *Chlamydozoon trachomatis*. The report gives recognition to the importance of numerous claims for temporary cultivation of this agent but expresses the view that convincing evidence is lacking that cultivation in series or in quantity has been accomplished. Progress is noted in the recognition and definition of viruses causing other non trachomatous follicular conjunctivitis sometimes confused with trachoma.

It is recommended that further investigations be undertaken to cultivate the virus of trachoma by some workable and generally applicable method establishing without doubt that the virus being cultivated is the real cause of trachoma. The report proposes that virologists and ophthalmologists collaborate as closely as possible in this work and recommends the adoption of the following laboratory procedure: (1) demonstration of Halberstaedter Prowazek (HP) inclusion bodies; (2) production in monkeys and apes of experimental trachoma capable of transmission in series; and (3) demonstration of serological relationship of the cultured virus to trachoma. While deploring the necessity

for human inoculation the report stresses that for the time being the final proof must rest on the production of typical trachoma in human volunteers.

Diagnosis

To clarify previously conflicting opinions among specialists in different countries on the diagnosis of trachoma the report gives a definition of the disease and sets forth criteria of diagnosis including differential diagnosis. An annex presents in tabular form the differential diagnosis of non trachomatous follicular conjunctivitis.

Epidemiology

The report discusses in some detail the differences reported in various regions of the world in the epidemiological and clinical picture of trachoma and summarizes the principal variations as follows: age of onset, clinical evolution, frequency of spontaneous cures, frequency of disabling sequelae and response to treatment.

The factors involved in determining the variations in incidence and type of trachoma found in a country are considered. These include the presence of associated bacterial conjunctivitis which is important in determining differences in clinical evolution, particularly in the frequency and severity of disabling sequelae. It is noted in the report that in the present state of our knowledge it is impossible to say whether or not different strains of the causative agent exist which could be in part responsible for the differences observed in the chemical and epidemiological picture.

With regard to reported variations in response to treatment these may have been due in a certain percentage of cases to the long period necessary for the disappearance of clinical symptoms after the completion of treatment. For this reason it is considered

Wld Hlth Org J Am R P Ser 1956 106 20 p. 25.
Price 1/9 \$0.30 c Sw fr 1.— Published in E, G, S, F, Czech,
and Spanish.

that for a satisfactory assessment of cure a follow up examination should be made not less than three months after the end of treatment

Preliminary research on the local epidemiology of trachoma and associated infections is required for adequate planning of control measures. The report proposes that a standard method for epidemiological surveys be adopted and gives details of a proposed standardized plan for the collection of certain data in order to determine the trachoma index and the general pattern of disease in the community. It is recommended that these data be collected by probability sampling and that they be analysed according to recognized statistical methods

Treatment

In the first report of the Expert Committee on Trachoma, which was published nearly four years ago a scheme of treatment based on the use of antibiotic ointment, combined with the administration of sulfa drugs when required was recommended. The results of subsequent trials have not only confirmed the efficacy of this type of treatment for large groups of the population, under varying conditions and in different countries but have also shown that the frequency of the daily applications of the antibiotic ointment can be reduced without appreciable loss of efficiency

It is noted in the report that a considerable percentage of cures of trachoma has been obtained as a result of the short term prophylactic treatment employed for the control of associated conjunctivitis, and that further trials of this method are fully justified. Recognition is also given to the satisfactory results of the use of antibiotics other than those originally recommended further investigation of their action is desirable. Recent

evidence suggests, too that some repository drugs may also be effective against trachoma and trials of such drugs are advocated. Attention is called to the possibilities of appearance of drug resistance

The report continues with a discussion of the criteria of cure admitting that there is as yet no sure method of determining whether the causative agent is destroyed or merely rendered inactive. Different criteria are specified applicable to mass campaigns and to individual cases and immigration requirements

Control projects

In advising on the planning of anti trachoma projects the report states that they must also include the reduction of any associated bacterial infections. It suggests that any project should be developed in four stages: (1) preliminary epidemiological survey, (2) pilot projects with varying techniques, (3) the mass campaign itself, and (4) integration of the project into normal public health activities. Each of these stages is discussed in detail and a number of directives are given

The appraisal of results should of course follow the same general principles as those established for the evaluation of all public health projects. Nevertheless a number of specific criteria are set forth which are applicable to a trachoma project

Research

Problems for internationally co-ordinated research on trachoma are outlined including virological, bacteriological, cytobacteriological, epidemiological and therapeutic aspects. A request is made for further work and for co-ordination of results in each of these fields as well as for exchange of information and of material for laboratory studies

THE TRAINING OF AUXILIARY HEALTH WORKERS

In countries where the expansion of health and medical services is an urgent requirement and where educational facilities are limited, a situation has arisen wherein partly trained health workers are being called upon more and more to perform certain tasks which are normally entrusted to fully qualified professional personnel. What this problem means in terms of selection and training is thoroughly investigated in a recent report of the WHO Expert Committee on the Professional and Technical Education of Medical and Auxiliary Personnel¹ which is devoted to a discussion of the auxiliary health worker his role in the general scheme of health services and the training required to enable him to accomplish his task with efficiency.

Stress is laid throughout on the responsibility of health administrations to determine the needs of their particular countries since it is on the basis of such an assessment that decisions as to personnel requirements must be made. Before examining the question of training therefore the report lists the basic health services of a community and classifies the professional personnel whom the auxiliary worker must assist or partially replace. No claim is made that the classification is complete but on the basis of it a clear picture can be obtained of the type and level of the auxiliaries required. Also taken into account is the need for what is termed the "polyvalent health worker" who may be called upon to undertake a number of duties generally found in more than one professional field.

General training problems

Although as the report points out no universal formula can be advanced for the training of health auxiliaries a few useful

suggestions are given under the following headings: teaching personnel; place and kind of institution; selection of students; teaching methods; length of training; and curriculum content.

Undoubtedly a prerequisite in the training of auxiliaries is the provision of fully qualified teachers and supervisors. For this reason the report devotes some space to a description of the desirable attributes of such personnel stressing that utmost importance attaches to their careful selection.

With regard to the location and type of training institution it is emphasized that success depends to a large extent on the quality of teaching and on the availability of adequate equipment and facilities. Every effort should be made to ensure that the location of the training course reflects as nearly as possible the conditions prevailing in the area in which the students will subsequently work. In other words a potential rural health worker should preferably be trained under rural conditions. Simplicity is advocated in the construction and design of training institutions the basic needs of which are enumerated.

In discussing student selection the report mentions that the choice of criteria must inevitably depend on local conditions. Such factors as character, ethical standards, age and physical fitness as well as educational background play a vital role in selection. In the matter of educational qualifications it is recommended that candidates who are suitably prepared should be encouraged to undertake professional studies.

Teaching methods and curriculum

Emphasis is placed on the practical aspect of training. In addition to demonstration methods and visual aids "learning by doing" is strongly advocated as a means of bringing the student face to face with specific health problems. The report adds that

¹ *Wld Hlth Org. techn. Rpt. Ser.* 19:6:109, 34 pages. Price 1/9 \$0.30 or Sw f 1.—Published in English, French, and Spanish.

a further step in the training process is explaining by doing. By this means the future health worker will be brought into contact with the people he will eventually serve, and will thus acquire their confidence and respect. Only the essentials of theory should be included in the curriculum and the suggestion is put forward that teaching staff prepare sets of mimeographed notes which can readily be brought up to date and serve as a practical reference book for the student.

Utilization of auxiliaries

Health auxiliaries should always work under the direct supervision of professional staff; they should not be allowed to *practise* independently. The ways and means of avoiding possible friction between auxiliaries and fully qualified professional personnel during the course of their joint work are next examined in the report. In the first place the position of the auxiliary worker in the health organization must be clearly defined and a reasonably high social status must be granted him. Any system of grading within an auxiliary category should be based on efficiency and experience and should avoid bringing the level of auxiliaries too close to that of fully trained professional workers.

Dealing with nomenclature, the report proposes that titles which are normally the prerogative of professional workers should not be given to auxiliary personnel in the same category, since this may lead to confusion in the minds of the population served.

Rather, the term "assistant" should be employed (for example midwifery assistant) or aide in the case of workers at a lower level.

The report stresses that although supervision by the appropriate fully trained professional worker is always necessary it should not be carried out in such a manner as to stifle the initiative of the auxiliary worker and reduce his sense of responsibility. As an extension of the idea that medical students should be given some sort of instruction on the role of their future assistants it is suggested that professional health workers should learn how to make the best possible use of auxiliary staff.

International assistance

After a detailed account of assignment and conditions of service the report continues with an offer of help from WHO in the training of auxiliaries. Governments are invited to draw on the store of information covering the results of experiments in various parts of the world, and to seek help either in setting up a new project or in modifying a programme already under way.

* * *

In conclusion the report reiterates that the auxiliary health worker should be carefully chosen, adequately trained, suitably employed, fairly remunerated and, above all, given the recognition to which he is entitled as an indispensable member of the team providing health and medical services.

German Translation of Monograph on Poliomyelitis

Poliomyelitis a monograph published by WHO in 1955 has been translated into German under the auspices of the *Gesundheitskommission der Deutschen Gesellschaft für die Vereinten Nationen* (Health Committee of the German Association for the United Nations) and has been published by Georg Thieme Stuttgart.

Notes and News

Study Group on Paediatric Education

WHO is convening a study group on paediatric education in Stockholm from 30 July to 4 August 1956 immediately following a meeting of the International Paediatric Congress which is being held in Copenhagen.

The Organization has long recognized that adequate health services for children are largely dependent upon properly trained physicians and that educational opportunities for training in paediatrics are sadly lacking in many areas. Even in highly developed countries paediatrics is a medical speciality of comparatively recent origin.

Three years ago WHO initiated a study of the present status of paediatric education in Australia and New Zealand, Europe and Latin America to obtain information comparable to that gathered in a similar investigation made some years previously in the USA by the American Academy of Pediatrics. The results of the WHO study are expected to form part of the basis of the study group's discussions and exchanges of view on current needs and developments in paediatric education in relation to health services for children.

Leading educators in paediatrics and public health specialists in maternal and child health from Africa, Central and South America, Asia, the Eastern Mediterranean Region, Europe and the Western Pacific Region have been invited to participate in the study group. It is hoped that this meeting will stimulate developments in paediatric education and improvements in child health services in countries where these are needed.

Inter Regional Malaria Conference

An inter regional conference on malaria for the Eastern Mediterranean and European regions is being held in Athens from 11 to

19 June 1956. This conference has as its purpose the study of ways and means of facilitating malaria eradication in the two regions.

The participants are expected to make an up-to-date review of malaria and malaria control achievements in Europe and the Eastern Mediterranean Region and to assess the present status of the development of resistance to insecticides in the anophelines which are of particular importance as vectors of the disease in this part of the world. They are to study the technical possibilities of eradication of malaria and the administrative arrangements that may be required such as planning and organizing malaria services, appropriate legislation, training programmes and standardization in reporting of results.

As eradication of malaria will bring as its consequence the interruption of residual insecticide spraying operations, the conference participants are expected also to discuss methods of establishing a system of epidemiological surveillance capable of detecting any case of malaria that might occur after the spraying operations are terminated, assuring prompt intervention and thereby preventing the danger of epidemic outbreaks. Although it is generally felt that from a technical standpoint eradication of malaria in the countries surrounding the Mediterranean is feasible by the application of residual insecticides, consideration is to be given to special difficulties which may be encountered in certain areas. Among such difficulties would be the problems presented by malaria carried by mosquitos of populations such as pilgrims or nomads. Finally the conference participants are to devote attention to ways of co-ordinating operations in the various countries which are

carrying out eradication programmes in the two regions

It is anticipated that the conference will be attended by about 60 participants from Europe and the Eastern Mediterranean Region and also by a number of experts from countries in other parts of the world where malaria eradication programmes or large scale malaria control programmes are under way

Expert Committee on Malaria Sixth Session

The WHO Expert Committee on Malaria will meet for its sixth session from 21 to 29 June 1956 in Athens following the Inter Regional Conference on Malaria for the Eastern Mediterranean and European regions. This meeting has been dictated by a need to provide the Organization with technical guidance on malaria eradication.

The Committee is expected to begin by defining the various terms employed when eradication is discussed, planned or implemented. It will consider the techniques that must be followed in epidemiological inquiries and in the evaluation of results since the methods now applicable to control campaigns are not sufficiently reliable for eradication programmes. It will also deal with the technical problems involved in achieving eradication in the shortest possible time and with the greatest safeguards against the reintroduction of malaria.

The membership of the Committee will be Colonel M. K. Afridi (Pakistan), Dr L. J. Bruce Chwatt (United Kingdom working in Nigeria), Dr A. Gabaldón (Venezuela), Dr L. F. Gunaratne (Ceylon), Dr K. C. Liang (China), Professor G. Livadas (Greece), Professor G. Macdonald (United Kingdom), Professor G. Raffaele (Italy) and Colonel J. Singh (India).

Expert Committee on Insecticides Seventh Session

The resistance of insects to insecticides is a problem which has developed to the point where many of the large scale programmes for the control of vector borne diseases in

man may soon fall into jeopardy. During the past few years, reports have been received from a number of countries to the effect that certain anophelines have shown varying degrees of resistance to DDT and that several species of culicine have followed the same pattern. It is known that body lice in Korea can no longer be controlled by DDT and that signs of resistance in these insects have also been observed in other countries. A resistant strain of *Aedes aegypti* has been found in Trinidad, and housefly control with certain chemicals is no longer possible in almost all areas where these materials have been used for any appreciable length of time. Evidence has now been gathered that the amount of research that is being performed to ascertain what causes death when insects are exposed to insecticides and what are the biochemical and physiological bases of resistance is inadequate when compared with the magnitude of programmes for the control of vector borne diseases by insecticides.

The seventh session of the WHO Expert Committee on Insecticides which is to take place from 10 to 17 July in Geneva will be devoted to consideration of the present status and possible consequences of insect resistance to insecticides. The Committee will be asked to report on the biological aspects of resistance including biochemical, physiological, genetical, and ecological factors. It is hoped that recommendations will be forthcoming on possible substitute means of insect control including perhaps the use of biological and naturalistic methods. The chief topic which the Committee is expected to discuss is an international collaborative scheme of research on problems associated with the control of insect vectors of disease. In preparation for this discussion the Organization has arranged for visits by staff members and consultants to almost every laboratory of importance where research on insect resistance to insecticides is being performed. On the basis of the information gathered it is hoped to develop a collaborative plan of concentrated research on some of the

fundamental problems connected with insect resistance to insecticides

Expert Committee on Organization of Medical Care

WHO is convening for the first time an Expert Committee on Organization of Medical Care. The meeting will take place in Geneva from 18 to 23 June 1956.

The question of organization of medical care is one in which WHO interest has been manifest for some time. At the Fourth and Fifth World Health Assemblies resolutions were adopted with a view to initiating studies on this subject. An Expert Advisory Panel on Organization of Medical Care was established in 1954.

The meeting to be held this month will have as its central theme the role of hospitals in programmes of community health protection. There is now agreement among public health and hospital administrators that the hospital should play an important part in any programme intended to give comprehensive health protection to a community. For example the International Hospital Federation a non-governmental organization which is in official relations with WHO devoted its 8th Congress to the subject "Preventive medicine as a major function of the hospital" showing the trend of modern hospital administration towards the fulfilment by the hospital of preventive functions with a view to giving better health protection to the community. Nevertheless except for some few local experiments there is as yet no place where the hospital is actually playing its full part in medical care services. Even in countries where hospitals are administered by the State it is usual to find two different branches within the ministry or directorate of health one dealing with health, and the other with medical services. Unfortunately co-ordination between the two divisions is not always good.

How can the desired co-ordination best be achieved? This is one of the fundamental questions which the Expert Committee will attempt to answer. Joint housing of hospitals

and public health services inter-changeability of personnel and community support of hospital activities are among the methods which have been recommended and which are expected to be analysed by the Committee. The important role of the out patient department the convenience of organizing home medical care services the regionalization of the hospital system and the responsibilities of physicians nurses and social workers are other items for discussion.

Experts in hospital administration public health administration and public health nursing have been selected to exchange points of view and advise WHO as to the best approach to a problem that is of utmost importance in many Member States especially those in which a national health service has been recently established or is under study. The following are expected to participate in the meeting: Dr T. C. Routley (Canada), Dr S. del Rio Gundian (Chile), Miss E. Magnussen (Denmark), Dr R. F. Bridgman (France), Dr B. C. das Gupta (India), Dr K. J. Mann (Israel), Dr A. Engel (Sweden), Dr H. M. C. Macaulay (United Kingdom) and Dr E. M. Bluestone (USA).

European Conference on Post Basic Nursing Education

As one of its inter-country programmes for 1956 the WHO Regional Office for Europe has organized a conference on post basic courses for nurses, to be held at Peebles near Edinburgh from 12 to 26 June 1956.

Previous nursing conferences have repeatedly stressed the importance of teaching methods and curricula in giving nurses the best possible training. The aim of the Peebles conference is to examine when and how post basic courses should be introduced.

A detailed agenda has been drawn up on the basis of proposals made by the participants themselves. These proposals show that the main problems absorbing nurses in Europe are remarkably similar. Reports prepared beforehand describe achievements in post basic nursing education in the various countries which will be represented at the conference.

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Institute Carshalton England Dr L. F. Gunaratne Superintendent Antimalaria Campaigns Colombo Ceylon Dr W. J. Hayes Jr Chief Toxicology Section Communicable Disease Center Savannah Ga USA Dr P. Kästli Director Etablissement fédéral d'industrie laitière et de bactériologie Liebefeld Bern Switzerland Dr Kingsley Kay Chairman National Health Pesticide Committee Department of National Health and Welfare Canada Dr S. Seshigiri Rao Director of Public Health Bangalore India Dr S. W. Simmons Chief Technology Branch Communicable Disease Center Atlanta Ga USA Dr Ake Swensson Director Karolinska Sjukhuset Stockholm Sweden and Professor R. Truhaut Faculté de Pharmacie Université de Paris France

Advisory Group on Accident Prevention

At a time when infant and child mortality in many countries is steadily decreasing and in many places has reached astonishingly low figures the rate of deaths due to accidents remains high and assumes a proportionately greater importance. In fact in some countries accidents have become the chief cause of death in the age group 1-19 years and in some places more pre-school children are killed by accidents than by all other causes combined. The scope of the accident problem is further indicated by estimates according to which the non-fatal accidents which may include permanent disablement are one hundred or two hundred times more numerous than the fatal ones. For these reasons important anti-accident activities have been undertaken in some countries and planned in others where the problem is coming more and more into the foreground.

In order to develop sound and effective accident prevention programmes there is need for comparative information on the prevalence of accidents and for sharing knowledge and experience gained in prevention programmes. It is for this reason that the WHO Regional Office for Europe is convening an advisory group on the prevention of accidents in childhood which

is meeting in Geneva from 4 to 8 June 1956. This meeting is the result of interest in accident prevention which has been expressed by several Member Governments and it is the first inter-country activity of its kind in this field.

The theme of the meeting is "Accident facts as a basis for preventive measures" and the advisory group is to study in particular methods of obtaining and presenting facts which may form the background for preventive action. Concentrating on the epidemiology of accidents the group will review various methods of fact finding with regard to both fatal and non-fatal accidents. It will examine how studies might profitably be designed to yield information adequate for preventive work and its subsequent evaluation and to give figures and results which would be internationally comparable. The group is also expected to make recommendations to WHO on further action in this field.

In the preparation of the meeting the Regional Office has been assisted by two consultants Dr George M. Wheatley Chairman of the Accident Prevention Committee of the American Academy of Pediatrics New York and Dr R. Berfenstam Associate Professor of Paediatrics at the University of Uppsala Sweden. Nine representatives of specialties such as public health administration medical statistics accident surgery and others from different European countries have been invited to participate in the meeting.

Seminar on Vital and Health Statistics

In April 1956 WHO and the Government of Viet Nam sponsored in Saigon a seminar for personnel engaged in health and demographic statistics work (either in medical institutions and health departments or in civil registries) in Viet Nam Laos and Cambodia. Nineteen persons participated in this seminar.

The training was practical in nature and comprised instruction in basic statistical methodology familiarization with the usual procedures employed in vital and health

More than forty nurses from nineteen countries¹ have been invited to attend the conference which in addition will have the collaboration of a number of experts in teaching psychology sociology, and public health administration

Miss N D Fidler Director of the School of Nurses University of Toronto and Miss Y Hentsch Director of the Nursing Section, League of Red Cross Societies are advising the WHO Secretariat on the preparation of the conference Dame Elizabeth Cockayne, Chief Nursing Officer Ministry of Health London and Miss M O Robinson Chief Nursing Officer Department of Health for Scotland, Edinburgh, will act as joint presidents

The following have been appointed as lecturers Professor J H F Brotherston, School of Social Medicine and Public Health Usher Institute Edinburgh, Dr Magda Kelber, Director Haus Schwalbach, Lind schied uber Bad Schwalbach, Hesse Professor G Mialaret, Lecturer in Psychology, Faculte des Lettres, Universite de Paris, and Lady Gertrude Williams Head of the Sociology Department Bedford College, University of London Miss Ellen Broe and Miss Yvonne Schroeder, of the Florence Nightingale International Foundation, will describe the preliminary results of a study undertaken by the Foundation on post basic nursing education

Study Group on Toxic Hazards of Pesticides to Man

A study group on the toxic hazards of pesticides to man is meeting in Geneva from 6 to 13 June 1956, to continue work which WHO began in response to a resolution of the Fourth World Health Assembly requesting that a study be made in collaboration with ILO and FAO, of such hazards²

Dr J M Barnes was engaged as a consultant to undertake the necessary investigation and the results of his inquiry were published in a monograph entitled *Toxic hazards of certain pesticides to man*³

The study group which is now being convened will review the problem and recommend the action that WHO, FAO and ILO might take in future to keep Member States aware of the dangers and implications of the use of pesticides in agriculture and public health Its discussions will cover (a) methods in which pesticides are used in public health and agriculture (b) the protection of operators handling pesticides (c) the extent of poisoning by pesticides and the methods by which more information might be gathered about their effect on operators who have suffered long exposure to them (d) the possibility of classifying pesticides on the basis of their toxicity and the extent to which gross contamination of food and water might occur and what hazards might be created thereby, and (e) the hazards to which third parties are exposed including the control of pesticide levels in food and the analytical problems involved in controlling pesticide contamination of food The study group is expected to consider those situations in which a real risk of acute sub acute or chronic poisoning by pesticides might occur, and to recommend ways in which more factual evidence of intoxication might be obtained focusing attention on those groups of people in which exposure to insecticides is greatest.

The importance of proper protection of persons handling insecticides is now enhanced by the increasing resistance of insects to insecticides and the consequent use of materials of greater toxicity than DDT and BHC, the insecticides most commonly employed up to the present Protective measures must be based however, on scientific evidence of their worth and practicability in the field

The following are expected to attend this study group meeting Dr J M Barnes Toxicology Research Unit Serum Research

¹ Austria Belgium Denmark, Finland, France, Germany Greece Ireland Italy Netherlands Norway Portugal Spain Sweden Switzerland Turkey Union of Soviet Socialist Republics United Kingdom of Great Britain and Northern Ireland Yugoslavia

² Resolution WHA 4.31 Off Rec Wld Hlth Org 1952, 35 29

Barnes, J M (1953) *Toxic hazards of certain pesticides to man* Genev A World Health Organization Monograph Series, No 16)

Malaria Consultant for Eastern Mediterranean Countries

Professor G. Livadas, one of the first malariologists to report on the resistance of vector anophelines to residual insecticides, is visiting Jordan, Lebanon and Syria as a WHO consultant on problems of malaria eradication. Dr Livadas, who is on leave from his post as Professor of Malaria at the School of Public Health in Athens, has fulfilled other assignments for WHO: he was Regional Adviser on Malaria in South East Asia for two years, and in 1955 he served for four months as a consultant in the organization of a malaria campaign in Afghanistan.

BCG Vaccination In Jordan

A two-year BCG vaccination campaign, conducted under the technical direction of WHO, recently came to an end in Jordan. This campaign, which was also aided by UNICEF and the United States International Cooperation Administration, was considered highly successful. More than 600,000 children under fourteen years of age were tuberculin tested and more than 300,000 vaccinated.

Dr Jibril M. Farah, WHO technical adviser, has reported that as a result of the campaign, a special BCG section has been set up in the Ministry of Health of Jordan to take care of vaccination needs in the future. This service is to be incorporated into a national antituberculosis programme in which 72 persons trained by international staff during the past two years are expected to work.

Contribution to Special Malaria Eradication Account

The fourth contribution to the voluntary fund for malaria eradication has been announced: \$4200 from the Government of Iraq. Other contributors to this special

account have been Brunei, China, and the Federal Republic of Germany.

New Appointments

The posts of Chief Maternal and Child Health Section and Chief Mental Health Section, which had been vacant for some time at WHO Headquarters, have recently been filled. The first is occupied by Dr Jessie Bierman, who before joining the Organization was professor of maternal and child health at the University of California School of Public Health. Between 1942 and 1947 she was Chief of the Bureau of Maternal and Child Health, California State Department of Public Health in San Francisco, and from 1936 to 1942 was Assistant Director of Health Services, US Children's Bureau. Dr Bierman is a graduate of the University of Montana, the University of Chicago, and Columbia University.

Dr E. Eduardo Krapf, who is now Chief of the Mental Health Section of WHO, was previously associate professor of psychiatry at the University of Buenos Aires. He was also connected with the National Hospital of Neuropsychiatry and acted as Psychiatric Consultant to the Armed Forces of Argentina. Last year Dr Krapf was elected Vice President of the World Federation for Mental Health, having been an active member of that body for some time past. He holds the titles of Professor Extraordinary at the University of Cologne and Honorary Professor of the St. Thomas University, Manila. Dr Krapf received his medical training at the Universities of Munich and Buenos Aires.

Another new appointment is that of Dr Carl S. Sebelius, who will take up his duties as Dental Health Officer in June. Dr Sebelius was formerly Director of the Division of Dental Health of the Tennessee Department of Public Health. He studied at Northwestern University, Chicago, at the Vanderbilt University School of Medicine, Nashville, Tenn., and at the University of Michigan School of Public Health.

statistics services, instruction in dealing with national and international data, exchange of information on the participants national systems, acquainting the trainees with international recommendations relative to statistical systems and discussion of the comparability of data, with emphasis on the three participating countries

Dr M Pascua WHO Director Consultant on Health Statistics acted as adviser for the seminar and took part in the training activities. The Organization also provided other teaching personnel seven fellowships for participants and teaching equipment. The Government of Viet Nam supplied three members of the teaching staff, among them Mr Ngo Ngoc Doi Director of the Institute of Statistics and Economic Studies of Viet Nam, who directed the seminar. The United Nations also lent its aid through provision of one lecturer and certain teaching materials.

The seminar included practical exercises and field visits as well as formal instruction which was in French. Interest in the seminar was keen, and it is hoped that the training given has paved the way for improvement of the statistical services of the countries concerned.

Study Group on Water Standards

A WHO convened inter regional study group on water standards met in the Philippines from 15 to 27 April 1956 to discuss problems of water quality in the Western Pacific and South East Asia regions and to formulate definite standards of quality for treated and untreated water as recommendations to be considered by an international study group meeting in Geneva in June 1956. The group was composed of experts from Australia, China, India, Indonesia, Japan, New Zealand, the Philippines, Singapore, and Thailand. Professor F. W. Gilcreas, former Assistant Director of the Division of Public Laboratories and Research, State of New York, now Professor of Sanitary Science at the University of Florida, acted as expert consultant for the study group.

The working sessions of the group were complemented by field trips to various water installations in Manila and its suburbs. Two open forums were held, one being concerned with the recommended standards of water quality and the other dealing primarily with laboratory techniques for the examination of water. The group concluded that much research on water quality and standard methods for water examination is needed, and it listed some 25 important projects which should be considered for cooperative study.

Seminar on Teaching of Preventive Medicine

As part of WHO's world wide programme in strengthening the teaching of preventive medicine in medical schools, a second Latin American seminar on the teaching of preventive medicine was held under the auspices of the Pan American Sanitary Bureau which acts as WHO Regional Office for the Americas, from 23 to 28 April 1956 in Tehuacán, State of Puebla, Mexico. The participants included deans and teachers from 39 medical schools in Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Puerto Rico and Surinam.

Like a previous seminar for countries of the southern part of Latin America, held in Chile in October 1955,⁴ this one had as its purpose to stimulate the teaching of preventive medicine throughout the medical curriculum. Among the topics discussed were methods of teaching preventive medicine, the organization of a department of preventive medicine and its relation to other departments of the school of medicine, and the role of the medical school in community health services.

Conferences on the same topics have also been held in Europe (in Nancy, France and Göteborg, Sweden) and in various countries of the South East Asia and Eastern Mediterranean regions on the occasion of the presence of visiting teams of medical scientists sent by WHO to those countries.



CHRONICLE OF THE WORLD HEALTH ORGANIZATION

CONTENTS

	Page
Ninth World Health Assembly	189
UNICEF and WHO	201
Health Assembly pays tribute to the memory of Dr Norman D Begg	203
Professor Jacques Pariset President of the Ninth World Health Assembly	205
Nurses their education and their role in health programmes report of the technical discussions at the Ninth World Health Assembly	207
An account of the preparations made in India for the technical discussions— <i>Miss T K Adranvala</i>	216
The health administrator views the role of the nurse in the health programme — <i>Dr J Allwood-Paredes</i>	218
Implications of the nurse's role for nursing service and nursing education— <i>Miss M Duveillard</i>	221
The contribution of the doctor and the health administrator to the future development of nursing— <i>Professor G A Canaperia</i>	225

Review of WHO Publications

Composting Sanitary Disposal and Reclamation of Organic Wastes By Harold B Gotaas Geneva, 1956 (*World Health Organization Monograph Series No 31*) 205 pages 49 figures Price £1 5s, \$5 00 or Sw fr 15 — (clothbound)

Throughout most of the period of the recorded history of man some association between disease and man's waste products has been thought to exist. Since man began to plant in order to harvest needed foods he has also associated these waste products with the fertility of the soil and the harvest. These opening words of Dr Gotaas's book show that the sanitary and agricultural importance of organic wastes is no new discovery yet, as the author goes on to say it is only a little more than a century since basic knowledge and a true understanding of the processes involved began to be acquired.

After describing briefly the processes involved in the decomposition of organic matter and summarizing the public health and economic aspects of composting the author reviews the historical development of composting methods from the earliest simple techniques up to the most modern mechanized processes. A short chapter on the analysis of various types of wastes comes next followed in its turn by a long and detailed discussion of the many factors affecting the production of good compost. The author then proceeds to describe the methods of composting recommended for large towns, for villages, and for individual farms illustrating his descriptions liberally with diagrams and photographs. The book ends with an interesting chapter on the recovery of methane from the digestion of manure and night soil.

While much has been written about the fertilizing value of organic wastes few publications have at the same time dealt thoroughly with the question of the danger

to public health inherent in the disposal of wastes on to the land. This book, which emphasizes the principles underlying the safe disposal of community wastes and relates them to the factors governing the recovery of nutrients from the soil meets a very real need.

Bulletin of the World Health Organization
1956 Volume 14, Number 3 (pages 353-592)

This number of the *Bulletin* contains the following: Synthetic substances with morphine-like effect: relationship between analgesic action and addiction liability, with a discussion of the chemical structure of addiction producing substances by N B Eddy, H Halbach & O J Braenden.

Bilharziasis survey in south western Asia covering Iraq, Israel, Jordan, Lebanon, Saudi Arabia and Syria 1950-51" by M Abdel Azim & Anne Gismann. "Recommended laboratory methods for the diagnosis of plague" by M Baltazard and others.

The Arizona group of Enterobacteriaceae in animals and man: occurrence and distribution", by P R Edwards. "Alma C McWhorter & Mary A Fife, Effect of preservation on the viability and allergenic potency of dried BCG vaccine" by Yoji Obayashi and others. "The Second International Standard for Corticotrophin" by M V Mussett & W L M Perry. "The alpha antitoxin content of the International Reference Preparations of *Clostridium welchii* Types B and D Antitoxins" by A Skulberg & W E van Heyningen. "Use of synthetic crystalline L- α -dimyrystoyl lecithin in cardiolipin antigens", by Alice Reyn & M W Bentzon. "Etude des propriétés sérologiques de la lecitine L- α -dimyristique synthétique cristallisée", by Marguerite Faure & C de la Vaissière and a bibliographical section on typhus and related infections.

NINTH WORLD HEALTH ASSEMBLY

The Ninth World Health Assembly took place in Geneva from 8 to 25 May 1966. The delegates of 76 Member States and Associate Members were present as were also representatives of the United Nations and its specialized agencies of seven inter-governmental and 34 non-governmental organizations in official relations with WHO and observers from several non-member States.

The Assembly unanimously elected Professor J. Parisot (France) as President. Vice Presidents were Dr E. de Paiva Ferreira Braga (Brazil), Dr Nor-el Din Tarraf (Egypt) and Or B. M. Clark (Union of South Africa). Dr M. Jafar (Pakistan) was Chairman of the Committee on Programme and Budget and Mr W. H. Boucher (United Kingdom of Great Britain and Northern Ireland) Chairman of the Committee on Administration, Finance and Legal Matters. The Executive Board was represented by its Vice-Chairman Dr O. Vargas Mendez and the Chairman of the Standing Committee on Administration and Finance Or F. J. Brady.

In his inaugural address Professor Parisot pointed out that the benefits resulting from new advances in medicine and social progress could not remain the prerogative of a few but were the common property of all peoples. He continued:

National economy is based upon human economy: the labour productivity, welfare and strength of a country are closely and reciprocally related to its people's health-capital. If health is to be made accessible to man both at the national and at the personal level, governments and peoples must unite their efforts. Moreover, if health is to be protected, it is no longer possible to rely on defence alone: an offensive on a world-wide scale must be launched, not only against the diseases of the body but also against those of the mind and against those sources of conflict bred by social inequality. The links between

the various parts of the world are daily becoming closer and their isolation is gradually disappearing so that unequal development in different countries in the promotion of health and control of disease especially communicable diseases is as the preamble to our Constitution says a common danger. Thus the solidarity of peoples in progress towards health would seem to be an essential condition of security and peace.

There was a time when such ideas seemed visionary to many people. In the light of progress, however, and in the face of the tremendous catastrophe which swept the world and made all men partners in a common misery, might one not cherish the ambition of bringing them together and letting them live in a single world-wide community?

Utopia has become reality: first in its conception, as expressed in that real Declaration of the Right of Man to Health set forth in the preamble to WHO's Constitution; then later in its application, by the adoption of a programme of world action which, however ambitious it may have seemed at the outset, has nevertheless by its growing achievements and successes exceeded many hopes and is disclosing immense prospects for the future.

Turning then to the universality of WHO, Professor Parisot said:

We were wholeheartedly glad to hear the statement made in 1955 to the Economic and Social Council by the representative of the Union of Soviet Socialist Republics to the effect that his country was proposing to take an active part again in our work in the cause of world health. At the Executive Board's last session the hope thus born became a near certainty.

I still think—and in so doing I am abiding, by the principles which we all cherish—that it must be our aim to give WHO as universal a character as possible in the interest of all its Members. I should like here once again to express the hope that the obstacle confronting us is only a temporary one and that by patience and wise determination we shall succeed in overcoming it.

In the foregoing remarks I have been referring to the Union of Soviet Socialist Republics. Naturally all I have said applies to all the countries who decided they had to leave us and whom when the time comes—I hope very shortly—we shall welcome with the same cordial feelings.

SCHEDULE OF MEETINGS

2-7 July	Conference on the Teaching of Preventive Medicine Zagreb
10-17 July	Expert Committee on Insecticides seventh session Geneva
23-29 July	Fifth European Seminar for Sanitary Engineers, Helsinki
30 July 4 August	Study Group on Paediatric Education Stockholm
5-25 August	Seminar on Nursing Education New Delhi
7-11 August	Study Group on the Effect of Radiation on Human Genetics Copenhagen
19-25 August	Seminar on Smallpox Vaccination Lima

The mention of manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature which are not mentioned. Proprietary names of such products are distinguished by initial capital letters.

In our youngest region, Africa, for instance, it is clear that no extensive and effective programmes of health work can be undertaken without first obtaining precise and reliable information on the nature and extent of the health problems which face this continent. It is therefore logical that a very considerable part of WHO's assistance to African countries and territories should take the form of planning and of co-ordination of surveys and pilot projects on tuberculosis, bilharziasis, nutrition, treponematoses and other important problems which this region has to solve.

On the other hand, in Europe and North America, increasing attention is being given to problems characteristic of highly industrialized communities, such as occupational health, cardiovascular diseases, cancer and rheumatism. Here too there is need for a series of studies on possible modifications in the pattern of health services arising from the fact that the proportion of the old people in relation to the total population is steadily increasing.

For the other regions—and let us not forget that these contain close on 80% of the world's population—the fight against communicable diseases and their ultimate control and eradication still retain a high priority. In the Eastern Mediterranean, for instance, 43% of the field budget was spent for this purpose in 1955, in particular to combat gastrointestinal infections, tuberculosis, malaria, trachoma, and the treponematoses.

However, in practically all regions, the improvement of environmental sanitation and the education and training of all types of personnel emerge now more and more as the two essential methods for raising the health level of the population. Throughout the report, there is ample evidence of the extensive aid WHO is giving to national health administrations anxious to solve the shortages of health personnel which continue to be a major deterrent to progress throughout the world.

Discussion of the work of WHO in 1955 gave delegates an opportunity to describe the health situation in their own countries, to tell what measures had been taken to solve the problems which were of most concern to their health authorities and to suggest the lines which certain WHO assistance programmes should follow.

The delegate of the United Kingdom of Great Britain and Northern Ireland recalled that ten years had elapsed since the founding of the Organization, ten years in which

public health in his country had steadily improved. In 1947 the infant mortality rate was 41 per 1000 live births, while today it is 24.9. The tuberculosis mortality rate, which was 552 per million inhabitants in 1947, was only 178 in 1954. Diphtheria caused only 9 deaths in a population of 44,250,000 in 1954, while in 1947 the corresponding figure was 242.

"The deaths that have not occurred, the lives that have been extended in length of days and usefulness, are numerous enough to give us a feeling of profound satisfaction," added the United Kingdom delegate, "but they are numbered in tens of thousands at most, whereas under the auspices of WHO, hundreds of thousands, even millions of survivors are the witnesses of the successful outcome of its campaigns."

In Iran, it was reported, the Ministry of Health is doing its share to expedite the desired progress in health activities. A seven-year plan is under way to which the Government has allocated a total of \$75,000,000. About \$30,000,000 of this sum have been earmarked for health centres, hospitals, clinics and rural dispensaries. The rest will be reserved for the eradication and control of communicable diseases. Particular emphasis has been given in the seven-year health plan to training personnel both within the country and abroad.

Although great progress has already been achieved in malaria campaigns, a sum of \$12,000,000 has been set aside for eradication efforts and it is expected that in 1961 Iran will be totally free from malaria. In this connexion, the delegate of Iran expressed his Government's appreciation and gratitude to UNICEF for agreeing to contribute to the malaria eradication programme.

In the current year, \$9,000,000 will be spent on public health alone. A mass campaign against smallpox has already been launched with \$400,000 allocated to this purpose.

After reviewing the programme of work of the Assembly Professor Parisot ended his address on a note of optimism

Why should we not again cherish the hope—even though that may mean reliving an illusion—of seeing some small portion of the immense resources devoted to lethal weapons diverted in favour of life giving weapons and of the world wide activities of our Organization?

The Assembly agenda included a review of the work of WHO in 1955 the adoption of the programme and budget for 1957, and other questions some of which had been proposed by various delegations. The discussions and the decisions to which the main points of this agenda gave rise are summarized in the account which follows¹

RESUMPTION OF ACTIVE PARTICIPATION BY CERTAIN MEMBERS AND ADMISSION OF NEW MEMBERS

One of the first decisions of the Assembly was to appoint a special committee as had been recommended by the Executive Board to study means of quickly enabling Members who had not been actively participating in the work of the Organization to assume their rights and fulfil their obligations again and particularly to give general directives concerning the settlement of arrears of contributions. Since no delegation of the USSR was present at the Assembly the special committee which was presided over by Sir Arcot Mudaliar (India) consulted with the representatives of one of the other eight States concerned and as a result of its deliberations made a proposal which the Assembly adopted by 51 votes against 0 with 5 abstentions. This proposal provided that the financial contributions due from the Members in question should be paid in full

for the years in which these countries participated actively in the work of the Organization and that for the other years a token payment of 5% of the amount assessed should be required with the understanding that the various payments could be made in annual instalments spread over a period of a maximum of ten years.

On the proposal of the delegation of Egypt—supported by the delegations of France Indonesia and Liberia—three countries which had recently become independent Morocco the Sudan and Tunisia were admitted to the World Health Organization as full Members. The Gold Coast, the Federation of Nigeria and Sierra Leone whose candidatures had been submitted by the Government of the United Kingdom of Great Britain and Northern Ireland were admitted as Associate Members. At their own request, Tunisia was assigned to the Eastern Mediterranean Region whereas Morocco provisionally remains in the European Region. Sudan belongs to the Eastern Mediterranean Region and the three new Associate Members to the African Region.

This brings the number of Member States and Associate Members of the Organization to 88.

REVIEW OF THE ORGANIZATION'S WORK IN 1955

In presenting his report on the work of WHO in 1955² the Director General drew attention to the varying techniques and objectives required by varying health conditions.

The overall policy we are pursuing is everywhere the same namely to provide Member States with the sort of international assistance they need to strengthen their own public health services. While in many cases the techniques needed to attain this goal are the same there are also owing to regional differences certain variations.

¹ The verbatim record of the plenary meetings the minutes of committees and sub-committees and the text of the resolutions and decisions of the Ninth World Health Assembly will appear in No. 71 of the *Official Records of the World Health Organization*.

² *Off. R. W.H. Hk. Org.* 1956 67 see also *Ch. Hk. Hk. Org.* 1956 10 9110

Tuberculosis

According to the delegate of Iraq pulmonary tuberculosis is the principal social economic and public health problem in his country. A number of factors contribute to its prevalence among them malnutrition, lack of education and a low standard of hygiene. Although hospitals have been established to take care of patients with tuberculosis many more are needed. Moreover there are often not enough beds to cope with the chronic cases. Because of the short term therapy commonly given (six month cures) relapses are frequent.

Several delegates stressed the importance of rehabilitation of tuberculosis patients—a question which has received little attention so far.

The delegate of Japan stated that tuberculosis surveys should be the first step in control of the disease.⁴ Owing to the rapid improvement in methods for the treatment of tuberculosis the death rate from that disease has decreased remarkably in Japan during the past ten years yet there is no definite proof of a decrease in the number of cases of tuberculosis.

Among other comments on tuberculosis the delegate of Israel mentioned that in his country the decrease in tuberculosis morbidity has made it possible to do away with many hospital beds and in Tunisia the delegate of that country reported a new tuberculosis project employing domiciliary chemotherapy is to be started in October 1956. The delegate of Viet Nam expressed the wish that WHO make a thorough study of the use of isoniazide.

Typhoid fever and vaccine trials

The delegate of Chile remarked that the increasing use of antibiotics has made the

diagnosis of typhoid fever difficult and has created a mistaken impression that the disease has been eradicated. Furthermore migrations from rural districts to towns and from country to country have made it increasingly difficult to follow up the results obtained against the disease through appropriate sanitation measures.

With regard to controlled trials of typhoid fever vaccine carried out in Yugoslavia⁵ the delegate of that country mentioned that the Yugoslav Typhoid Commission conducting the trials had found that the phenol vaccine was effective and gave better results than the alcohol vaccine. In addition the phenol vaccine is easier to produce than the alcohol vaccine and can be used without refrigeration.

The trials carried out in Yugoslavia might prove to be the first of a series aimed at obtaining the best quality of vaccine for various diseases. Similar trials are in fact being carried out in several countries and the Health Assembly requested the Director General to prepare a report on progress in the evaluation and production of vaccines against typhoid, smallpox and diphtheria, pertussis, tetanus (combined vaccine).

Rabies

The delegate of China congratulated the Organization on its work in rabies control with particular reference to the clinical trials of antirabies serum in Iran.⁶ Anti-rabies serum had existed for some time but there had never been so favourable an opportunity to use it effectively as the one which arose in Iran.

The delegate of Chile felt that the value of serum and vaccine prophylaxis should be widely publicized since it could be easily applied in any country.

See Chron. *Wld Hlth Org.* 1956 10 153

For details of these trials, see B II *Wld Hlth Org.* 1951 25 747 and 773 and abstract thereof in Chron. *Wld Hlth Org.* 1953 9 308

For information the surveys conducted in Iraq, see *Bull. Wld Hlth Org.* 1955 13 1041

Similar projects are under way for the control of trachoma, venereal diseases, tuberculosis and water and insect borne diseases.

The most outstanding health achievement in Iran is the recent ratification and implementation of a bill which prohibits the growing of the poppy and the non medical use of opium. Stressing the importance of this decision both nationally and internationally the representative of Iran stated:

Having recognized the gravity of the situation we have frankly exposed the question of opium production and addiction in cold figures and as Minister of Health I pleaded with the Senate and Parliament for urgent ratification of the anti opium bill which certainly ensures the health of millions both inside the country and abroad. The bill was passed after many stormy sessions in both Houses because it did involve an economic problem for the farmer and deserved full consideration. We had learned by experience however that in the long run efforts directed only to limiting production and abolishing opium addiction are very likely to meet with failure that as long as opium is accessible to the public an anti opium campaign and withdrawal measures are absolutely useless. Although this drastic measure involved a tremendous economic sacrifice for a country which tries hard to balance its budget it was sincere and significant evidence of Iran's interest in international collaboration to stop the sources of illicit opium traffic throughout the world.

This bill includes three phases of activity each of which is of relative importance for effective administration. The legislation requires (1) the banning and total abolition of poppy cultivation (2) the treatment of addicts and (3) the control of illicit opium traffic. Strict control is already being exercised over poppy cultivation and since the enactment of the law over 12 000 hectares of cultivated land have been ploughed under and hundreds of dens have been closed throughout the country. Many custodial institutions for the treatment of addicts have been established and millions of anti opium pills have been distributed to the provinces where opium addiction is a problem. One aspect of the problem remains to be solved however and that is the danger of opium being smuggled from outside the country. There is no doubt that if the outside illicit traffic especially from some of the neighbouring countries is not controlled our efforts will be completely wasted. Some countries have failed year after year to co-operate with the Narcotics Board and do not send the statistics required by the 1925 and 1931 Conventions nor

exercise strict control for the prevention of illicit traffic to other countries.

In describing health progress in his country the delegate from Egypt drew attention to the Qalyub Demonstration and Training Area a WHO aided project which aims to provide governments with a proving ground for different patterns of health services and public health administration. Egypt is hope fully awaiting the results of efforts to solve rural sanitation problems, among other important health concerns.

Communicable diseases

The discussions of work on the various communicable diseases—including trachoma³ bilharziasis malaria (see p 199) tuberculosis typhoid fever and leprosy (see p 196)—reflected the importance accorded to their control by the delegates of different countries.

Bilharziasis

It was pointed out that although the destruction of snails and the treatment of patients both constitute essential elements of bilharziasis control still another factor has to be considered the relationship between the extension of irrigation schemes which is a feature of plans for the agricultural development of tropical and semi tropical countries and the spread of the disease. The Egyptian Government is now taking care to ensure direct surveillance of all newly dug canals with a view to preventing the entry of snails.

The Friedheim treatment employing an antimony compound has given quite good results in Israel. In this country it has been found practical to entrust bilharziasis control to the malaria control service which deals with the pollution of water courses.

In a number of countries bilharziasis control is seriously handicapped by the present scarcity of sanitary engineers.

³ An article of WHO and trachoma projects will appear in the next number of the *Chronicle*.

ever been attempted—bringing health to man. The consequences might be mental repercussions of unforeseen dimensions. He therefore urged that the greatest attention be paid to the Organization's mental health activities which should be expanded in the future.

The delegate of Argentina expressed the hope that everything possible would be done to promote maternal and child health and mental health which he considered the two most important subjects with which the Organization was called upon to deal.

The delegate of Egypt spoke with appreciation of the work already undertaken by WHO on occupational health and called attention to the need for increasing emphasis on programmes in this domain because of the problems presented by the rapid shift to industrialization in many parts of the world.

Professional education and training

The discussion of the WHO fellowships programme centred on the selection of fellows, the organization of their studies and the choice of place of study. In the view of certain delegations, both long and short duration studies were valuable and fellowships should be awarded not only to senior medical staff but also to other personnel of all grades. According to the representative of Yugoslavia the gradual extension of the fellowships programme has been of immense value to countries in developing their public health programmes. However the requests submitted by public health administrations were not always carefully thought out. The Yugoslav delegate felt that what was required was the establishment of teaching institutions in the country or region itself and the selection for fellowships of those persons who after having received adequate training at home showed themselves most capable of benefiting from study abroad.

In the opinion of the Iraqi delegation the fellow can obtain the best training in countries where conditions are similar to those in his own country.

The representative of Iran felt that irrespective of whether a fellow after his period of training works in his country of origin he still remains a potential asset to the world in general and that adequate provision should be made for both intra and inter regional training since both types are clearly complementary.

The delegate of Cuba called attention to the scarcity of adequately trained personnel to meet all the needs of public health administrations. Medical education covers an extremely wide field and seminars held recently in Chile and Mexico have tried to find ways of modifying the curricula of medical schools so as to achieve an integrated approach to medicine. However training as a public health official calls for even more specialized studies are necessary specialized training in public health in the broadest sense. It is therefore essential to promote the creation of new public health schools along the lines already followed in the USA and certain other countries. The aid of WHO should be given first to individuals through the award of fellowships and then to teaching institutions which train specialists in public health.

The delegate of Israel paid tribute to the memory of the late Dr J. Vesely, former Chief of the Fellowships Section, who had done so much to develop this work.

* * *

At the end of the discussion of the work of WHO in 1955 the Assembly noted with satisfaction the manner in which the programme had been planned and carried out during the year and commended the Director General for the work accomplished.

The delegate of Finland expressed the opinion that in view of the considerable increase in the incidence of poliomyelitis in various parts of the world, preventive work particularly research on vaccination, should be given high priority by WHO. The delegate of the Netherlands pointed out that the duration of the immunity conferred by poliomyelitis vaccine has not yet been determined. It was noted that the smaller countries experience difficulty in obtaining the vaccine which they require.

Other communicable diseases

Delegates from several countries spoke also about certain disease problems which were not mentioned in the Director General's report. For example, the delegate of Tunisia called attention to the problem of *tinea* among schoolchildren in his country where the incidence in this population group was about 15-20%. And the delegate of the Sudan pointed out the seriousness of cerebrospinal meningitis in his country, stating that chemotherapy had given excellent results but that preventive services had to be organized.

Diagnostic antigens and sera

Referring to a point raised by the delegate of India the delegate of Denmark observed that the problem of virus diseases was of the greatest importance and that the main difficulty at present was in arriving at an accurate diagnosis. He went on to say that excellent serological methods had been developed for identifying most of the viruses but that it was difficult to obtain good specific antigens and sera. Only perfectly equipped laboratories could make them and the few who did so reserved them for their own use. For this reason the necessary antigens and sera were not readily available and when

obtainable at all were very expensive. If WHO, by co-ordinating the work of the producing laboratories, by giving grants or by any other means could make antigens available at a reasonable price for use in diagnostic laboratories important progress could be made in the control of virus diseases.

Public health services

WHO's interest in dental health was the subject of some discussion. It was noted that fluoridation of water as a means of combating dental caries is still controversial and that more guidance from the Organization on this matter would be welcome. The delegate of Iran observed that the fluoridation of water supplies properly came within the province of environmental sanitation and he added that his country was very much interested in this. Consumption of milk and milk products in Iran is relatively small yet the incidence of dental caries among the people is low. Thorough analysis of natural water supplies has shown that the quantity of fluorine in the water is negligible. However, research on the diet of the population has revealed that the tea contains an appreciable quantity of fluorine. In that country children from the age of one year upwards consume several cups of tea a day and this might account for the comparative absence of dental caries. This discovery merits investigation by WHO as it might offer an alternative to fluoridation of water supplies.

The delegate of Italy wanted to see more attention paid to health education which is the very foundation of any public health programme. He felt that the Organization should study the relationship between various problems such as sanitation, nutrition and health education.

The delegate of the Netherlands stated that WHO was at present carrying on the greatest biological experiment which had

degrees of seriousness and the Assembly requested the Director General to study the feasibility of holding an inter regional conference to discuss the control of this disease in countries having similar epidemiological social and administrative problems

Although it is perhaps premature to talk of eradication there is no doubt that the new methods of treatment will bring about a definite decrease in the endemicity. The various delegations which took part in the discussion of this question attached great importance to early case finding, the selective and voluntary isolation of lepers in hospitals, mass chemotherapy which has been found wherever it has been employed (e.g. in India and central Africa) of value not only from the curative but also from the preventive viewpoint (mass treatment with sulfones and DDS has led to a considerable decrease in contagiousness) and the physical physiological functional and occupational rehabilitation of persons diagnosed and treated in time

Seventh revision of the International Lists

The Conference for the Seventh Revision of the International Lists of Diseases and Causes of Death held in Paris in February 1955 recommended certain changes in the *Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death* which was published in 1948 and which contains the sixth revision of the Lists. In addition the Conference requested WHO to re-examine the Nomenclature Regulations 1948 (WHO Regulations No. 1)—the purpose of which is to guide Member States in compiling uniform and comparable statistics of diseases and causes of death—with a view to deciding whether the requirements of certain of the articles should not be made less strict. The Ninth World Health Assembly adopted Additional Regulations amending the Nomenclature Regulations 1948 drawn up on the basis of suggestions from govern-

ments as well as recommendations of the Revision Conference.

The attention of the Assembly was drawn to Article 3 of the revised Nomenclature Regulations which admits selection of the areas as would fit the national programmes of compiling and publishing statistics of causes of death. In addition this article in its redrafted form facilitates application of the Regulations in countries in which coverage of medical certification of cause of death is incomplete owing to the lack of medical facilities and in which reliable data on causes of death cannot be obtained for the whole territory. A special paragraph in this article enables differentiation and presentation of such statistics of causes of death as are in accordance with the essential requirements of the Regulations.

International Sanitary Regulations¹

The Assembly agreed after considering a special report of a group of three quarantine experts who visited Saudi Arabia in March 1956 and the recommendations of the Committee on International Quarantine that the special sanitary control measures applied during the Mecca Pilgrimage were no longer necessary². It therefore abrogated the relevant provisions of the International Sanitary Regulations as well as Annexes A (sanitary control of pilgrim traffic approaching or leaving the Hedjaz) and B (standards of hygiene on pilgrim ships and aircraft carrying pilgrims). The great Quarantine Station at Jeddah which was formally opened on 3 April 1956 is suitably equipped to deal with pilgrim traffic.

Henceforward the measures applying to pilgrims will be the same as those applied to

¹ An article on the present application of the International Sanitary Regulations will appear in a forthcoming number of the *Chronicle*.

² In view of the importance of the Assembly's decision on this subject, an article on the sanitary problems of the Mecca Pilgrimage will be published in a forthcoming number of the *Chronicle*.

BUDGET AND FINANCIAL POSITION

The Assembly adopted an effective working budget of \$10 700 000 for 1957 this sum representing an increase of \$500 000 over the budget for the present year. If the inactive Members announce their intention to resume active participation in 1957 the Director General is authorized to make use of a supplemental effective working budget not exceeding \$1 525 000.

With regard to the funds placed at the disposal of WHO by the United Nations Expanded Programme of Technical Assistance for 1956 the Assembly noted with regret that the funds now available fall short by about \$247 000 of the amount foreseen for financing approved projects. The Assembly recognized however that the present financial position of the Organization is better than it has ever been with regard to payment of contributions by Member States.

PROGRAMME FOR 1957

Cardiovascular diseases and hypertension

As the communicable diseases decrease in importance as cause of death the cardiovascular diseases tend to take their place. In fact in many countries cardiovascular disorders are now among the principal causes of death.

In a paper presented to the Assembly by the Indian delegation the main public health problems in this domain were stated to be the rheumatic, the hypertensive and the coronary groups of disease. The rheumatic heart diseases have already received some attention from WHO: an expert committee on rheumatic diseases met in 1953 and will meet again in 1956, and the second session will be largely concerned with the public health aspects of rheumatic heart disease. In 1955 a WHO study group met to consider the etiology and prevention of ischaemic heart disease.

A great deal of consideration has been given to these problems in certain countries. The Assembly was of the opinion that in view of the increasing incidence of some of the cardiovascular conditions more attention at the international level was warranted. It therefore adopted a resolution requesting the Director General to establish an expert committee on cardiovascular diseases and hypertension and to give consideration to proposals put forward by the Government of India. These proposals include a survey of the incidence of the various etiological groups of cardiovascular disorders (congenital rheumatic syphilitic bacterial hypertensive coronary pulmonary and others), an evaluation of extrinsic factors in their causation, organized research to determine the intrinsic factors contributing to the development of heart disease, education of the public, training of specialists and the relevant education of doctors in general and adoption of preventive measures.

Leprosy control

The Assembly considered a recommendation by the Executive Board arising from a decision of the Fifth World Health Assembly concerning the intensification of leprosy control and a proposal by the Government of Burma for convening a conference on this subject in South East Asia. The Burmese proposal was strongly supported.

In India leprosy affects 2-4% of the population in regions where it is endemic and a total of approximately 1 500 000 inhabitants throughout the country. There are at least 30 000 sufferers from leprosy in Viet Nam and so far compulsory isolation has been a complete failure since the number seems to be increasing rather than decreasing. In the Belgian Congo there are nearly 250 000 persons with the disease out of a population of about 12 000 000.

Leprosy is a problem which is encountered in all the WHO regions although in varying

In view of all the potential risks to health associated with the uncontrolled use of radiation it was suggested that it was the duty of health administrations to set up services specializing in the effects of radiation, in particular as regards the following points: supervision of safety measures for workers in industry, mining and in all institutions concerned with radioactivity; training of staff responsible for inspecting X-ray installations and atomic plants with regard to compliance with protection regulations; instruction in the precautions to be taken by personnel exposed to radiation; establishment of a recording system to register the state of health of workers in atomic plants and keeping watch on the long term effects of small doses of radiation.

There are other international bodies working in the domain of atomic energy whose relations with WHO have to be considered. Consequently the Assembly requested the Director General to continue to collaborate with the Secretary General of the United Nations and the specialized agencies concerned and to co-operate with and provide all appropriate assistance to the Advisory Committee on Atomic Energy and the Scientific Committee on the Effects of Atomic Radiation set up by the General Assembly of the United Nations as well as to the governments sponsoring the establishment of an international atomic energy agency.

The relevant programme of activities drawn up and already being carried out by WHO was approved by the Assembly. The programme includes (1) training of health personnel in this specialized field such as specialists in atomic energy plants or laboratories, public health administrators and sanitary engineers and medical users of radio-isotopes; (2) the collection and distribution of information on the medical problems of atomic energy and the medical uses of radio-isotopes; (3) the health problems involved in the control of the location of

reactors and in radioactive waste disposal from factories, laboratories and hospitals; (4) standardization problems; and (5) stimulation and co-ordination of research work on the health aspects of radiation.

The Assembly also approved a proposal presented by ten countries drawing the attention of all Member States to the fact that "in every national, bilateral or multi-lateral project concerned with the peaceful uses of atomic energy, planning and implementation of such projects should be made in close contact with the responsible public health authorities."

Malaria eradication

After having considered the report of the Director General on the implementation of the resolution of the Eighth Health Assembly relating to malaria eradication and having noted the considerable progress made in some countries towards eradicating the disease, the Ninth Health Assembly again drew the attention of governments to the need to intensify their malaria control programmes "so that malaria eradication may be achieved as early as possible by stages under certain circumstances, with a view to ultimate economy in expenditure and to obviate the potential danger of development of resistance to insecticides in anopheline vector species."

The Assembly also asked the Director General again to invite contributions from governments, non-governmental organizations and private sources to the Malaria Eradication Special Account.

The Health Assembly declared itself satisfied with the high priority which has been given by UNICEF to malaria eradication programmes and the increased allocations for this purpose which are expected to be made in 1956 and subsequent years. It recommended that UNICEF "continue its full support to the continuance and expansion of the existing control programmes as

other international travellers or to migrants and seasonal workers as persons taking part in periodic mass congregations. Additional Regulations to this effect were adopted and will come into force on 1 January 1957. The States bound by the Additional Regulations undertake to require adequate standards of hygiene and accommodation on ships and aircraft carrying persons taking part in periodic mass congregations. These standards must not be lower than those applied under the International Sanitary Regulations prior to the coming into force of the Additional Regulations.

The Assembly accepted certain government reservations to the amended yellow fever clauses of the International Sanitary Regulations which come into force on 1 October 1956. It also amended the provisions of the Regulations concerning the form of the international certificate of vaccination or revaccination against smallpox.

Peaceful uses of atomic energy

The discussion of the health aspects of the use of atomic energy was introduced by the Director General's reports on this subject and by a statement by Professor L. Bugnard, representative of the International Commissions on Radiological Protection and on Radiological Units. The latter described the work of these two Commissions and the ways in which they and WHO were co-operating.

Numerous delegations expressed the desire that the effects of radiation on man and his environment should continue to be studied with the utmost care and suitable measures be taken at both the national and international level to ensure protection of the population.

Even the most reliable information on the maximum levels of tolerance to radiation is subject to revision since the biological effects of the absorption of radiation are still imperfectly known. Furthermore it is not

certain that the doses considered permissible for the individual are also permissible for the human species. This is an alarming problem since if it were to be found that these doses are in fact dangerous to the species from the genetic point of view the harm done would be irreparable.

It was suggested in the Assembly that WHO should encourage countries to make surveys of hereditary diseases now so as to have a starting point for the measurement of developments when atomic radiation increases.

In addition to contamination of the atmosphere by fumes and dust from reactors there is the problem of the discharge of radioactive waste into the soil and into water courses or oceans and the effect of this on the natural biological cycles. Certain methods which industry and public organizations can utilize to prevent the by-products of atomic energy from endangering world water resources were mentioned at the Assembly.

The industrial use of atomic energy is not the only question at issue and several delegations pointed out that the use of X-rays on a large scale for medical purposes, particularly for radiodiagnosis, also involves genetic risks to which the attention of the medical profession should be drawn.

Considerable stress was laid during the discussion on the need to train personnel as rapidly as possible in methods of health protection against radiation. The organization of courses in radiation protection such as the one which WHO sponsored in Stockholm was considered to be of great importance. Public health officers often realize their ignorance of atomic matters and are not in a position to discuss them on an equal footing with persons trained in mathematics and physics. Some type of special instruction is therefore required to prepare public health officers for their new responsibilities in this domain.

spoke of the future prospects of the Organization

Of course if we had greater resources at our disposal, we could do much more and it is my whole hearted wish that the future may grant us more favourable prospects in this respect. However it would in my opinion be a mistake to judge the

possibilities of expansion of our work solely on the basis of budgetary considerations. The general objectives that our Constitution assigns us cannot be attained in one or several years. It is only within the framework of long term action that we can evaluate our effort soundly bearing always in mind the error of simply "standing still" and the necessity of building for the present with an eye ever towards the future.

UNICEF AND WHO

The United Nations Children's Fund (known as UNICEF) is a close associate of WHO in efforts to protect and improve the health of mothers and children. For several years these two agencies have been working together and pooling their resources in maternal and child health programmes. In 1955 for example UNICEF allocated \$12,400,000 in supplies and equipment and WHO provided 300 specialists for 213 joint projects.

In an address to the Ninth World Health Assembly Mr B. Rajan, Chairman of the UNICEF Executive Board, stressed the wide range and the significance of the joint health activities of UNICEF and WHO. Extracts from this address are given below.

Perhaps no two organizations in the United Nations are associated by the very nature of their activities as closely as WHO and UNICEF. Your field is the health of all the world's people, ours is the health and welfare of mothers and children everywhere. You give assistance in the form of technical knowledge and advice, we give it in the form of supplies, equipment and training. Thus implicit in our individual terms of reference there is an immense area of common concern, a division of functions and a union of effort. Is it therefore surprising that the overwhelming majority of UNICEF assisted programmes are also assisted by the World Health Organization? At present the Fund is giving assistance to 282 programmes in 95 countries and territories. In no less than 213 of these programmes UNICEF and the World Health Organization are jointly engaged. Five sixths of the allocations made in the last year by UNICEF have been made for mass health and maternal and child welfare programmes—the two great areas of our common concern.

Not even the most cursory inspection of these programmes can fail to reveal the wide range of their benefits or the significance of their impact upon human health and welfare in the less fortunate areas of this earth. In our joint BCG campaigns for example, nearly sixty million children have been vaccinated so far. 1956 will add another 15.5 million to this total. Our programmes against trachoma, launched only two years ago, have been successful beyond all expectations. 1.6 million have been treated so far and another 636,000 will be treated during the present year. The miracle of penicillin in the treatment of yaws has dramatized more vividly perhaps than anything else the results that national effort and international assistance can achieve together in the control of mass disease. Fifty-six and a half million people have so far been tested and 8.3 million treated in a joint yaws programme. This year we expect to treat 3 million children and mothers as against 1.7 million in 1955. In malaria campaigns where our main effort is now directed, UNICEF supplies

a step towards transformation into eradication campaigns

In the conviction that it is highly desirable to obtain malaria control simultaneously in areas as large as possible so as to increase the efficiency of the campaigns and effect economy the Assembly at the suggestion of the Government of India recommended that the Organization offer appropriate assistance in whatever form governments may require subject to availability of funds

OTHER ASSEMBLY BUSINESS

Elections to the Executive Board

The following six States were elected as Members entitled to designate a person to serve on the Executive Board Canada India Italy Mexico, Syria and the United Kingdom of Great Britain and Northern Ireland

Relations with UNICEF

The Assembly expressed its appreciation of the continued effective co operation between UNICEF and WHO and its satisfaction with the arrangements now established with regard to financial relations

Special fund for improving health services

The Assembly called for the maintenance of close co operation with the United Nations and any of its subsidiary organs concerned with the planning and development of a special United Nations fund for economic development

Minimum educational standards for doctors

The Director General was requested to study a proposal of the Government of India concerning the establishment of international minimum standards for basic medical education

Reports on the world health situation

The Director General was requested to prepare for the Eleventh World Health

Assembly the first report on the world health situation summarizing the reports submitted by Members pursuant to Article 61 of the Constitution This article provides that every Member State shall report annually to the Organization on the action taken and progress made in improving the health of its people

Tenth anniversary of WHO

In view of the fact that in 1958 ten years will have elapsed since the foundation of WHO the Assembly decided to celebrate the tenth anniversary of the Organization and requested the Director General to prepare a special report for the purpose, reviewing all the activities of these ten years This special report, as well as the first report on the world health situation will be considered by the Eleventh World Health Assembly with the aim of subsequently developing the activities and programmes of WHO on the basis of the experience acquired and taking into account the new possibilities for international co operation

Host Agreement concerning the Regional Office for Europe

The Assembly approved the Host Agreement between the World Health Organization and the Government of Denmark, defining the privileges and immunities of the Organization and of its Regional Office for Europe The Agreement was signed on 29 June and 7 July 1955

Use of Arabic language

The Assembly approved the use of the Arabic language in the meetings of the Regional Committee for the Eastern Mediterranean beginning in 1957

* * *

In his farewell address to the Assembly the President expressed his gratitude to the delegates for the work accomplished and

HEALTH ASSEMBLY PAYS TRIBUTE TO THE MEMORY OF Dr NORMAN D BEGG

The last day of the Ninth World Health Assembly was marked by sorrow at the news of the death of Dr Norman D Begg on 23 May in London after an illness of several weeks. His loss was mourned by all the staff of the WHO Regional Office for Europe of which he was the loved and honoured chief and by the entire Organization.

Dr Begg was born in 1906 in Kuling, China. He was educated in Aberdeen, Scotland, and obtained his medical degree (M B Ch B) from the University of Aberdeen in 1929. Subsequently he received his diploma in Public Health (D P H) in London in 1932 and the following year a doctorate in medicine (M D) from the University of Aberdeen. After having worked in the teaching hospital in Aberdeen, Dr Begg entered the services of the London County Council where he occupied increasingly important positions in a communicable diseases hospital. In 1935 he was appointed epidemiologist and director of communicable diseases hospitals in Southend-on-Sea. Two years later he returned to London as Medical Superintendent of a large communicable diseases

hospital in the East End where he remained until the end of 1945.

Dr Begg was then loaned to the United Nations Relief and Rehabilitation Administration (UNRRA) for service in Warsaw

Poland where he was first epidemiologist and later Chief of the Health Division.

In 1947 Dr Begg joined the staff of the World Health Organization (Interim Commission) in Warsaw and was transferred to Geneva at the beginning of 1949. He took charge of the Special Office for Europe with responsibilities concentrated on the health problems of the war-damaged countries. With the steady expansion of WHO's work in Europe a regional organization was established towards the end of 1951 and



Dr Begg was elected the first Director of the Regional Office.

Professor J. Parisot, on behalf of the Assembly, and Dr J. D. MacCormack (delegate of Ireland), on behalf of the Regional Committee for Europe, paid tribute to the memory of Dr Begg.

Professor Parisot spoke of Dr Begg's personality and of the part he had played in the

and WHO's technical knowledge will protect no less than twenty two million people during 1956. In maternal and child welfare programmes the provision of basic equipment has been approved for nearly 10 500 centres in 59 countries and territories.

But our gratification at what has been done should not blind us to the far greater magnitude of what remains to be accomplished. In the vast area of Africa south of the Sahara one person in every six is a yaws case, the overwhelming majority of them have still to be reached by international assistance. Perhaps 90% of our trachoma effort is in Taiwan and along the Mediterranean shores of Africa we have yet to develop these campaigns among millions elsewhere who suffer from this affliction. Our fight to control leprosy is barely in its infancy. Our fight to cure those actually suffering from tuberculosis is still in the stage of modest

pilot projects. Malaria eradication in Asia has hardly begun. In Africa it is not as yet even technically possible. Even in the areas where mass programmes have been in operation for several years they have achieved nothing approaching total coverage. Our maternal and child welfare centres numerous though they are have touched only the fringe of the problems of ill health in the rural areas of the world where the great majority of the world's population live. Measured as it must be measured against the immense and specific facts of disease the world over our response is only a small one and measured against the general facts of ill health against infant mortality rates of over a hundred per thousand against life expectancies of under thirty five years it is smaller still and even less encouraging. Realism compels us to acknowledge that we have made only the beginning of a beginning.

ANNIVERSARY OF THE SIGNING OF THE WHO CONSTITUTION

22 July 1956 marked the ten year anniversary of the signing of the Constitution of the World Health Organization. In commemoration of this event the Director General issued the following statement.

Ten years ago on 22 July 1946 representatives of 61 countries assembled in New York City signed the Constitution of the World Health Organization (WHO) which is dedicated to the attainment by all peoples of the highest possible level of health.

On the same day the Interim Commission of the World Health Organization consisting of persons designated by 18 States was established and remained in being until in 1948 the Constitution was ratified by 26 Member States thus bringing the World Health Organization officially into being as a Specialized Agency of the United Nations.

The foundation of the World Health Organization was thus laid ten years ago. A great deal has happened since. The Organization now has 84 full Member States and four Associate Members. It has established six regional offices in different parts of the world and now operates at a budget level of nearly \$11 000 000. By 1956 it was estimated that some 400 million people constituting one sixth of the world population had already benefited from modern methods of controlling malaria tuberculosis and treponematoses as a result of programmes assisted by WHO. Apart from operating central technical services including a world wide epidemiological intelligence service WHO is now assisting more than 500 health projects in 108 countries and territories. A considerable proportion of those projects have been made possible through the assistance of the United Nations Children's Fund and further funds made available under the United Nations Technical Assistance Programme.

In the early years following immediately upon the signing of the Constitution of WHO progress was of necessity slow. However at this milestone in the history of the Organization it can be said that not only have sure foundations been laid but that practical results of great importance to the future health of the world have already been achieved. In two years time the World Health Organization will officially celebrate its tenth anniversary as an effectively operating agency with its own independent governing body and annual budget. This will be the moment to assess its achievements more fully.

In the meantime there are solid grounds for satisfaction in the progress made in the ten years since the historic occasion of the signature of the Constitution and in the fact that the objectives and inspiration of our work which are precisely laid down and defined in that blueprint remain of unimpaired validity today.

PROFESSOR JACQUES PARISOT

President of the Ninth World Health Assembly

Professor Jacques Parisot was born in 1882 at Nancy France where he later brilliantly completed his medical studies. In 1914 as a young "Professeur agrégé" he was made director of the Villemin Hospital Sanatorium of the tuberculosis clinic and of the recently opened tuberculosis dispensary. The special competence he had acquired as assistant to the great French phthisiologist Leon Bernard particularly fitted him for this post.

The 1914-18 war temporarily interrupted his university career. He spent more than four years in the army first as medical officer in an infantry regiment at the front, then as medical officer in charge of a field hospital behind the lines and finally as medical adviser to General Mangin's army group.

Returning in 1920 to his duties as professor and director he taught general and experimental pathology concurrently he devoted a large part of his time to tuberculosis control and this was to result in hygiene and social medicine finally becoming his life work. His research and some three hundred papers published in this period were already devoted mainly to epidemiology, immunity, anaphylaxis, serotherapy and vaccination.

In 1927 on becoming titular holder of the Chair of Hygiene and Social Medicine he founded a regional hygiene institute for the purpose of promoting health and welfare work of every kind to this was attached a university preventive medicine centre the first of its kind in France apart from the one in Strasbourg. He gave the Meurthe-et-Moselle departmental board of social hygiene a fresh impetus by greatly increasing the

number of preventoria, sanatoria and dispensaries in the Lorraine region.



When social insurance was inaugurated in 1930 he at once realized its importance for the future of public health, actually assisting in the development of the scheme and in the extension of social security to cover all fields of labour including agriculture, industry and mining.

His ability rapidly brought him to the forefront and earned him the post of adviser to the French ministries of national education, public health, labour, agriculture and foreign affairs in which capacity he presided over numerous committees.

work of WHO in the European Region, and of the loss which his death represented to the Organization

Dr Begg died in his prime before he could realize all the promise of his strong and lovable personality. Endowed with a remarkable capacity for work, he gave unstintingly of himself in the service of the World Health Organization for more than eight years, first in helping the reconstruction of countries devastated by the war, and then in organizing the Regional Office for Europe, which was largely his creation.

With his great lucidity of mind, his intuition, his profound knowledge of health problems, his humane understanding of the principles of social medicine, he presented and directed year by year a programme of action that was ever more closely adapted to the extremely varied needs of his region. Dr Begg was conscientious, thoughtful, prudent in the best sense of the word, *courageous in expressing and defending his opinions*, generous in his ideas and in his conduct. Modest, reserved in manner, he showed a warm and confiding nature to those who really knew him. We could see these qualities in all his personal relations in his conversation—where a touch of Scottish humour came out—and in the thoughtful way he listened to others, never evading difficulties or hiding behind vague or incomplete replies.

To all of us who knew him, Dr Begg's death brings a sense not only of sad loss to the Organization he served so well, but also of personal sorrow at the disappearance of a colleague and a friend.

Dr MacCormack paid tribute to the achievements of Dr Begg as Director of the Regional Office for Europe and expressed the deep sadness which was felt at his passing.

Norman Begg essentially belonged to us [the *European Region*] and we were proud to claim him for our own. There was a bond of friendship and understanding between us which nothing could break, a bond that was forged by his own upright, kindly and lovable personality. He was not demonstrative, but he was sincere and he rang as true as steel. He engendered trust in everyone with whom he came in contact and he never failed anyone. No wonder we claimed him jealously as our own, and to a man we were united in the determination that we would not exchange him for anyone else in the world. It is given to few men indeed to inspire such feelings of loyalty, trust and affection, but Dr Begg did it without trying—he did it by just being his natural self.

The work accomplished in the European Region in the few short years that he was given to us is a fitting monument to the ability of the man. He took over a welter of nations of widely divergent political views and each one strong in its own age-old nationalism, and proud of its own traditions and beliefs, even in the medical world. In a few short years he had welded this region into a homogeneous and harmonious whole and imbued it with a spirit of co-operation and mutual understanding and friendship second to none in the world. He had no favourites and yet we were all his favourites. He was a profound psychologist and he played on the strings like a master musician. The inter-country programmes he established achieved far more than an improvement in medical techniques and knowledge; they brought about a better understanding between the countries of the region and fostered real friendship and mutual understanding. We in Europe owe Dr Begg a debt of gratitude. With his passing we have lost a wise counsellor and a valued friend. *His memory will live in our hearts as long as we live ourselves, and shall go down as a cherished tradition so long as the European Region exists.*

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His ability rapidly brought him to the forefront and earned him the post of adviser to the French ministries of national education, public health, labour, agriculture and foreign affairs, in which capacity he presided over numerous committees.

During the Second World War he was deported to the concentration camp at Neuengamm Hamburg despite his high office and essentially humanitarian role. Returning with unimpaired energy and enthusiasm he devoted himself to fresh tasks. In 1949 he was made Dean of the Medical Faculty of Nancy University. This gave him the opportunity of extending still further his field of activities by completely modernizing this medical school and creating a centre for the occupational and social rehabilitation of physically handicapped persons. In this latter task he succeeded despite all administrative difficulties in bringing about co-operation between the university hospitals, and social security organizations.

The work of Professor Parisot is not limited to his achievements in his own country. At a very early date his personality made itself felt beyond the frontiers of France. In 1929 he was alternate to Professor Leon Bernard as representative of France on the Health Committee of the League of Nations succeeding Professor Bernard on that committee in 1934 and becoming Chairman of it in 1937.

In the years preceding the Second World War he took part in the work of the Inter-

national Labour Office and was entrusted with numerous study missions which took him all over Europe as well as to the USSR and the United States.

In 1946 during the International Health Conference in New York he signed the Constitution of the World Health Organization on behalf of France. In 1948 the French Government designated him to sit on the World Health Organization Executive Board of which he was unanimously elected Chairman in 1951. For several years Professor Parisot led the French delegation at the meetings of the Public Health Committee of the Brussels Treaty Organization and of a group of experts dealing with health matters for the Council of Europe. Since 1948 he has been head of the French delegation at the World Health Assembly every year.

Professor Parisot holds the Croix de guerre for both World Wars as well as numerous French and foreign decorations. In 1953 he was invested with the Grand Cross of the Legion of Honour. In 1954 the World Health Assembly awarded him the Leon Bernard Foundation Prize which is given for outstanding work in the field of social medicine.

NURSES THEIR EDUCATION AND THEIR ROLE IN HEALTH PROGRAMMES

Report of the Technical Discussions at the Ninth World Health Assembly

"Nurses their education and their role in health programmes" was selected by the Seventh World Health Assembly as the subject for the technical discussions at the Ninth World Health Assembly. It was believed that this subject is of universal importance in developing both hospital and public health programmes throughout the world.

It was considered desirable to have the subject discussed first in Member countries by groups of nurses and other members of the health team. Accordingly an outline was prepared which could be used to stimulate discussion and was sent to Member Governments early in 1955. At the same time the two international nursing organizations which are in official relationship with the World Health Organization, the International Council of Nurses and the International Committee of Catholic Nurses and Medical Social Workers, sent the outline to their national associations and representatives in 55 countries. The League of Red Cross Societies brought it to the attention of their national societies.

Although the outline for discussion was intended primarily for the use of nurses, they were urged to secure the participation in their groups not only of nurses from the various branches of the profession but also of all members of the health team. The subject was in fact widely discussed by nursing groups and allied professional workers responsible for health services throughout

many of the Member countries. Forty comprehensive reports of the discussions in those countries were returned to WHO and formed the basis for a background paper¹ which was transmitted to all Member countries before the Ninth World Health Assembly. This paper and the questions attached served in turn as a basis for the discussions.

Dame Elizabeth Cockayne, Chief Nursing Officer, Ministry of Health for England and Wales, was nominated by the President of the Eighth Health Assembly and appointed by the Executive Board as the General Chairman for the technical discussions.

A total of eleven hours was devoted to the discussions. These consisted of an opening and a closing plenary session and three sessions of each of nine discussion groups. The total registration for the group discussions was 213. Each of the nine groups had an average attendance of 20. More than two hundred persons attended each of the plenary sessions. Nurses were included in the official delegations from 21 countries and in addition the two international nursing organizations which are in official relationship with WHO and the League of Red Cross Societies had nursing representatives present throughout the technical discussions.

Dame Elizabeth Cockayne, the General

¹U published working document A9/Technical Discussions, I

Chairman in a statement opening the first plenary session pointed out that nurses throughout the world had been challenged by the opportunity to participate in the preliminary plaos for these discussions and that they were awaiting eagerly the reports of these discussions. She reminded the group that on the next day (12 May) nurses throughout the world would be celebrating Florence Nightingale's birthday. Florence Nightingale wrote many thousands of words but she had little patience for words without action. Nurses are anticipating action in their plans to improve nursing service and to provide better educational facilities for professional nurses. She emphasized the need to confine the discussions to the role and the education of professional nurses because of the limited time available. Therefore the role of auxiliary nursing personnel would be considered only in relation to the role and responsibilities of professional nurses.

The General Chairman then introduced the four symposium speakers who were to set the theme for the group discussions: Miss T. K. Adranvala, Dr J. Allwood Paredes, Miss M. Duillard and Professor G. A. Canaperia.² Following the four papers the Chairman called on Miss Pearl McIver, WHO Special Consultant for the Technical Discussions to summarize the symposium papers.

The Chairman stated that in order to have the groups small enough to permit full participation on the part of all members arrangements had been made for nine groups. All registrants had been assigned to groups on the basis of language choice to provide a fair distribution of persons according to geographic areas and fields of work. The groups were free to select any or all of the suggested questions contained in the background paper for discussion or other problems if they so desired.

² The papers presented by these speakers will be found on pages 16-27.

The following served as chairmen

Group	Chairman
1	Dr E. de Paiva Ferreira Braga, formerly of the National Health Administration Brazil
2	Miss Eli Magnussen, Chief Nurse National Health Service, Denmark
3	Dr C. H. Yen, Director, Department of Health Administration, Taiwan Provincial Government
4	Dr E. Aujaleu, Director of Social Hygiene, France
5	Sir Arcot Mudaliar, Vice-Chancellor, University of Madras, India
6	Mrs L. Petry Leone, Chief Nurse, United States Public Health Service, Department of Health, Education and Welfare
7	Dr Ahmad Ali Zaki, Director, Medical Services, Sudan
8	Dr J. N. Togba, Director General, National Public Health Service, Liberia
9	Dr S. Anwar, Director, Public Health Service, Indonesia

Each of the nine groups prepared a fairly detailed report of their discussions of the background paper. These reports have been summarized under the three main headings: the role of the nurse in the health programmes, the education of the nurse, administration and effective utilization of nursing services.

THE ROLE OF THE NURSE IN HEALTH PROGRAMMES

All the groups reviewed the functions set forth in the background paper and there was general agreement that the role of the nurse will vary according to the availability of all types of health personnel, the particular health problems of the area, the stage of development of the health programmes of the country and the level of both general and professional educational achievement within each country. The specific functions which are performed by nurses in some countries may be inappropriate or impossible in other countries at this time. Therefore it appears necessary for each country to analyse its own

situation and to prepare specific statements in accordance with existing conditions. For example, there is a tendency in some countries for nurses to perform some of the technical functions formerly considered to be the prerogative of doctors. Some of the groups believed that these functions were medical responsibilities and should not be delegated to nurses. It was suggested by some that such assignments were what prevented nurses from *nursing* which is their first professional responsibility. In other countries where nurses have been thoroughly instructed in performing techniques such as intravenous injections, physicians prefer to assign such functions to nurses, and if there are enough nurses to carry both nursing and technical functions of this type, this may be a very acceptable arrangement.

However, there was general agreement that certain broad basic responsibilities should be included in the role of the nurse in every country, and if they are not included in her current role, they could be included as goals to be attained in the near future. Five functions were listed as being essential responsibilities of professional nursing:

- (1) Giving skilled nursing care to the sick and disabled in accordance with the physical, emotional, and spiritual needs of the patient, whether that care is given in hospitals, homes, schools, or industries.

- (2) Serving as a health teacher or counsellor to patients and families in their homes, in hospitals or sanatoria, in schools, or in industries. Because of her extensive and intimate contact with patients and families, the nurse usually has the confidence of the family and is in a strategic position to put scientific information into simple language which they will understand, accept, and put into practice.

- (3) Making accurate observations of physical and emotional situations and conditions which have a significant bearing on the health

problem and communicating those observations to other members of the health team or to other agencies having responsibility for that particular situation. Thus the nurse is a very valuable liaison between the patient and the physician, the research scientist, the sanitarian, the social worker, the school teacher, or the industrial foreman.

- (4) Selecting training and giving guidance to auxiliary personnel who are required to fulfil the nursing service needs of hospital or public health agency. This also involves an evaluation of the nursing needs of a particular patient and assigning personnel in accordance with the needs of that patient at a particular time.

- (5) Participating with other members of the team in analysing the health needs, determining the services needed, and planning the construction of facilities and the equipment needed to carry out those services effectively.

THE EDUCATION OF THE NURSE

Each of the nine groups devoted considerable time to this subject. While each group approached the subject somewhat differently, the conclusions reached were remarkably similar.

Recruitment of students

It was agreed by all the groups that attracting a sufficient number of qualified candidates for schools of nursing and selecting the most suitable ones are big problems. Several suggestions were made by the various groups which may aid or influence the recruitment of student nurses.

1. The attitude of the public towards the nursing profession influences recruitment of students more than any single factor. (Physicians can be and have been influential in creating a good opinion of nursing.)

2 Comfortable living quarters for students which provide them with an opportunity to lead a normal life such as the quarters provided for other students in the health professions are essential

3 Accurate and attractive information about the activities of and the opportunities for nurses should be conveyed to parents of potential candidates and to teachers and students in secondary and preparatory schools. Several groups expressed a need for films, other visual aids and pamphlets in the language of the country

4 While a good general education is an important requirement, personal characteristics such as an interest in people, a desire to serve mankind and an ability to understand and accept people are important qualities in a nursing candidate

5 Some countries have found that those nursing schools which provide a high standard of education attract and retain more and better qualified students. Though educational requirements are very important, one group emphasized that a beginning must be made with the available resources. It was realized that all countries might accept this standard as their aim even though it might have to be reached through successive stages of development

6 Bursaries or stipends should be provided for those students unable to pay for their education in nursing

Organization and administration of basic schools of nursing

All the groups agreed that the primary purpose of a school of nursing was to provide a sound education in nursing. It was recognized that some nursing schools appear to be organized primarily to provide service to the patients of a particular hospital. Student nurses do and should render nursing care to patients. However, the nursing service assign-

ments of students should be based on the educational needs of the student rather than on the needs of the hospital. Therefore, the majority of the groups advocated that schools of nursing be administered as separate entities and where possible as an integral part of a university or other educational institution

The school of nursing should be directed by a qualified nurse who is skilled in teaching and familiar with methods of educational administration. Physicians who are skilled teachers are also required. For this reason, as one participant suggested, the establishment of a nursing school in a medical centre which supports a medical school also is desirable. Since the practical or clinical education of the nurse is fully as important as the theoretical instruction, all nurses who serve as nursing supervisors in the clinical areas need to be interested in education and skilled in teaching. It was agreed by all that the nurse teacher must be a competent nurse who has had post basic preparation in teaching

A good nursing school, as any other type of professional school, requires financial support in addition to the tuition or fees paid by students. A nursing school should not be expected to operate on funds contributed by the hospital in payment for student services. Financial support from the government or from private sources should be provided for nursing schools in the same manner as it is provided for other types of professional schools

The budget should be adequate to provide the necessary library facilities, text books, and teaching and laboratory equipment as well as salaries for the teaching and administrative staff and scholarships, bursaries or stipends for students who need financial assistance. Funds for the construction and maintenance of residence halls for both students and teaching staff should be provided unless other arrangements are made for the necessary living and recreational facilities

The curriculum of the school of nursing should provide for a general education in nursing including instruction and experience in surgical medical paediatric and maternity nursing. In addition all the groups urged that more emphasis be given to preventive medicine and the promotion of health. It was agreed that experience in health centres and homes (under the supervision of public health nurses) should be part of the training. The need for such background subjects as sociology and psychology and for teaching and practising sound principles of mental hygiene and human relationships throughout the entire curriculum was recognized. Guidance and character building activities should be encouraged to assure the development of emotionally secure and socially acceptable young people. It was emphasized also that modern methods of instruction such as seminars discussions demonstrations and ward clinics should be employed as well as formal lectures.

It was pointed out that in some countries where midwifery training has been well established nursing schools give little or no preparation in maternity nursing. Maternity nursing was believed to be an essential part of the nursing school curriculum although the basic school should not be expected to prepare its graduates for midwifery practice.

One of the groups called attention to the preponderance of men among the nurses in some countries. It was agreed that men nursing students should be given the same instruction and experience as that required of women students.

Post basic education

The groups agreed that teachers supervisors and administrators in both hospital and public health nursing services needed additional preparation beyond that received in the basic nursing schools. Some countries have established post basic programmes of

study in these fields and also in some clinical specialties. It was considered desirable that post basic courses should be on a university level and where possible under university direction.

In those countries where this type of post basic education is not available scholarships should be provided for study outside the country. Even when there are some facilities within the country selected nurses with experience and maturity will benefit greatly by study abroad and scholarships or bursaries should be awarded for such study.

Even the best qualified person must be learning continually if he is to keep up to date with scientific discovery and progress in the health sciences. Therefore refresher courses seminars and conferences for supervisors and teachers need to be provided. Some of these may be held jointly with other professions represented on the health team. Others may be arranged for a specific group such as public health nurses hospital nursing supervisors or nursing teachers (tutors) or for a group from several neighbouring countries on a regional basis. Funds should be made available for the support of this type of refresher work.

THE ADMINISTRATION AND EFFECTIVE UTILIZATION OF NURSING SERVICES

While the background paper considered "utilization" and "administration" as separate subjects the group chairmen and rapporteurs agreed that effective utilization was one phase of good administration. Therefore in presenting the summary of the group discussions these two aspects were combined.

All the groups emphasized the importance of "the health team" and the value of a good team spirit. It was agreed that there are various types of teams within the hospital or public health agency. There is the administrative team made up of the medical officer and the chiefs of all divisions or departments

There are teams which may be planning and promoting a special health programme such as malaria control or child hygiene. There are nursing teams in each ward or unit of a hospital or teams concerned with rehabilitation of chronic disease patients which may be composed of physician, nurse, physical therapist, occupational therapist, psychologist, etc. The hierarchy of health and hospital administration tends to make the development of the team spirit difficult—but this can be overcome by an attitude of respect for the dignity of the individual in whatever capacity he (or she) may be serving. This team spirit which involves a mutual recognition of the responsibilities and capabilities of each member of the team can be developed through a sharing of suitable learning experience with various members of the health professions in staff meetings, conferences and seminars and in joint participation in solving a problem which is of concern to the whole staff. It was suggested that this interchange of knowledge about the functions of other members of the health team and experience in working as a team member should begin early—preferably among students in medical nursing or other professional schools. More emphasis on the principles of mental health, human relations and sociology in the basic education of all members of the health team will prove beneficial provided the faculty and other personnel of the educational institution also practise these principles of good interpersonal relationship. The medical officer is usually though not always the leader of a health team. Whoever is the leader must be able to inspire his team mates to work with him, not for him.

The organization of the agency administering the health services was considered briefly by several groups. Hospital or public health services are usually under the direction of a physician who is responsible for the entire health service of the agency. Even in the smallest administrative unit of the hospital

or public health agency there will be one or more of several types of workers such as nurses, sanitarians, dietitians, auxiliary workers, etc. In most countries, nurses comprise the largest number of health personnel in either a hospital or a public health service. The selection of a competent chief nurse to serve as the leader of the nursing team is considered essential. The chief nurse will be responsible to the director of the total health service for the amount and quality of nursing service required to carry out the entire health programme. In this capacity (as chief of the nursing service) the chief nurse would be a member of the administrative team of which the physician in charge is the team leader and would participate on the policy level in analysing the health service needs in planning how best to meet those needs, and in suggesting ways by which the total service may be improved.

A similar pattern of organization on the state, provincial and national level is considered essential for effective administration. A majority of the discussion groups emphasized the need for a chief nursing officer in the national or federal health agency. This nurse should be directly responsible to the administrator of the health programme for that country. Some of the usual functions of such a nurse are:

- (1) participating in planning the national health programme

- (2) acting in an advisory capacity and as an interpreter of nursing trends to her own department and to other departments of government on matters relating to nursing

- (3) giving leadership in all areas of nursing and in particular assisting in the improvement of standards of nursing education and nursing service

In countries where the accreditation of nursing schools and the licensing of nursing practitioners is a responsibility of the ministry of health, these functions would

also be under the general supervision of the chief nursing officer

The primary purpose of legislation concerning the practice of nursing is to protect the public from unqualified practitioners and ensure a high quality of nursing service. Several groups stressed that the laws should grant broad authority to the licensing body but that too many details should not be written into the law. Authority to prepare regulations regarding the details should be included but the regulations themselves should be flexible enough to permit approval of experimental types of nursing schools granting of licences to graduates of accredited nursing schools in other countries and otherwise encouraging the development of standards higher than the minimum requirements. Several groups mentioned the importance of consulting the national nursing organization of the country before introducing any legislation. Not only will the nursing organization have many helpful suggestions to offer but also it can be a strong support in securing passage of the act.

Effective utilization of all available nursing resources is a very important aspect of good administration. Several of the groups emphasized the importance of doing job analyses to ascertain the functions of all members of the health team in order that the members understand fully the functions and responsibilities of their co-workers as well as their own. The scientific information derived from such studies will make it possible to plan for better utilization of the services of each worker and in addition may justify spending more money for additional equipment which by saving nursing time will result in more and improved services thereby saving money in the end.

It was felt that each institution or agency should study its own problems in order to enable the nurse to work efficiently. Examples cited were giving attention to the location of service rooms and the arrangement of

equipment when the hospital or health centre is constructed grouping patients according to the severity of their illness providing facilities for ambulatory patients to eat their meals in a dining room instead of serving them in their ward and providing "recovery rooms" for post-operative patients so that emergency facilities and equipment may be available immediately with the minimum of time and effort.

Job analyses and studies of this type help the nurses to view their own jobs objectively and to revise some of the traditional methods which have been rigidly carried out simply because that was the pattern which existed when they were students.

A careful analysis may show how the services of married nurses may be used who because of family responsibilities cannot engage in full-time nursing work. It may also show where men nurses can serve more effectively than they are presently permitted to do in some countries.

A point of warning was brought out by one group: efficiency experts should be guided by a committee of physicians and nurses or they may not see the significance of certain professional details. It was also believed that the results of the studies required professional interpretation.

It is generally agreed that productive work is possible only when the workers gain personal and professional satisfaction from their employment. Assurance that their working and living environment offers a standard of comfort and convenience comparable to that enjoyed by other professional workers in the area is important. Therefore administration must be concerned with the establishment of good personnel policies—hours of work, salaries, promotion policies, vacation periods, sick leave and retirement pensions. Provision must also be made for adequate work space, the required clerical assistance and sufficient supplies and equipment to permit effective functioning.

With regard to living conditions, one of the participants said it was essential for nurses to lead a private life similar to that of other members of the community. This means that hospital nurses should have a choice as to living in an apartment or flat in the community or in a hostel in connexion with the hospital. When the nurse prefers to live outside the hospital her compensation should be adjusted accordingly.

In order to attract nurses to rural and extremely isolated areas, it was suggested that comfortable houses or flats should be constructed if none are available. Inadequate living arrangements are frequently a barrier to recruitment for remote posts. Another plan proposed called for a rotation of personnel for a two or three year assignment to an isolated area followed by a return to a more populous area for a tour of duty. The giving of scholarships to selected prospective student nurses from the remote areas with the understanding that after having finished their training they will return to the area to work for a stated number of years was also proposed.

* * *

After presentation of the reports from the nine groups discussion from the floor was invited. A number of participants commented on the methods used in these discussions and on the value of discussing this problem jointly with the nurses, and re-emphasized some of the points brought out in the group discussions.

The General Chairman then called on Mrs L. Petry Leone and Sir Arcot Mudaliar to summarize the sessions briefly. Mrs Leone made the following comments on the significance of these technical discussions for nursing.

This is the first time on an international basis that outstanding doctors and health administrators have met with nurses to consider together problems

of nursing. This is an historic occasion but more important is the practical value it will have for progress in health.

All who have participated in these technical discussions recognize the importance of nursing in bringing health to people and through health, in raising the standard of living and freeing the human spirit for its fullest self-realization and creativity.

Of all the health professions nursing is perhaps the closest to people—closest to the largest number of people.

It is this closeness which calls for depth of personal understanding, tenderness, sympathy and constructive personal and community attitudes. The people to whom we nurses are close are of all ages, from birth to old age. They have varied social and economic backgrounds. They exhibit all degrees of health from that robustness we strive to maintain to suffering from all the scourges man is heir to which we nurses under medical direction strive to relieve. We are close to people in their homes, in health centres, in hospitals, in the workshop, to children in schools, to people as they work together for health in community groups.

Here in this closeness lies the justification for our learning principles of social sciences to apply in human relationships.

As the definition of health is broadened and as modern science advances the responsibilities of nursing like those of medicine and public health expand.

If we speak of improving the education or training of the nurse it is for this reason—that nurses be able after that training to meet their expanding responsibilities. If we say that the young men and women who want to be nurses should have reached a higher stage of education before entering training for the profession it is because the nature of nursing requires its practitioners to be wise in many ways and its students to have foundations on which the learning of nursing can be based.

If we speak of the independence of nursing education from hospital control it is because we believe that in this way nurses can be better prepared for their total responsibilities in all kinds of hospitals and in community nursing.

When we speak of improved preparation of nurse teachers it is for the sake of improving the practice of nursing as it touches people.

When we speak of legislation to control the practice of nursing and the licensure of various types of nursing personnel we are speaking of protecting the public from unsafe practices.

When we speak of preparing nurses for administration and placing them in administrative positions in nursing schools, hospitals, public health agencies,

and in national health administrations it is for the sake of improving nursing services for people

These are some of the ways in which nursing services can be improved

Population grows rapidly and the services to be rendered grow even more rapidly. And so we need more nurses everywhere

All that is done to improve nursing education will serve also to attract more students and make nursing a more attractive career in the minds of their parents. Stimulating teaching, variety of learning experiences inside and outside hospitals, the satisfaction of applying scientific principles in the care of people sick and well, improved living, social, and recreational facilities for students and mutual respect among the members of the health professions—these will attract students. Recognition of nursing education as meriting independent support as does education for the other professions will attract discerning young people and their parents as they face career choice. So also will recognition of nursing as a field in which workers may advance to teaching and administrative positions increase its attractiveness.

We desire to be co-operative team members and as our competence develops to be members of the administrative team. We see nursing organically related to the total health effort. All our striving, even at these technical discussions, has one aim—that the people be served.

Sir Arcot Mudaliar in his comments said he was very glad that a definite understanding had been reached about the role of the nurse and while it may differ from country to country it is generally realized that there is a good reason for the view we take that the functions of the nurse must be carried out under suitable conditions. We are painfully conscious of the fact that there are countries with varying degrees of evolution but we must at the same time realize that there should be not an ideal but a normal method of training and recruiting nurses everywhere. It is true that in some countries religion and social custom may at present stand in the way of the adoption of what we consider to be a very rational method of training but the world is moving fast.

An important point was made in noting that under certain circumstances and perhaps for the good auxiliary personnel cannot

be dispensed with in any country. It is a question of utilizing the auxiliary personnel from time to time and of giving them the necessary training.

With regard to the educational aspect it should be realized that the education a nurse is given is merely a preliminary one and that there is no end to the education she receives after entering the profession. The remarkable progress that has been made in the field of medicine which includes nursing the great and startling discoveries made every day which dazzle even the well-trained doctor make it abundantly clear that there can be no form of education at the end of which we can say that the education of the nurse is completed. On the other hand what we will try to do in the nursing schools is to provide the kind of training which will make it possible for the nurse to educate herself as she advances in her profession.

The fact should be stressed that post basic education and refresher courses are essential in the programme of nursing education. Sufficient emphasis has been laid on the fact that nursing teachers must have had a thorough post basic education if they are to fulfil their task and it can be truly said that in most countries while the basic education of nurses is at a reasonable level there are not enough facilities for post basic education hence the suggestion that regional centres be established.

So far as administration and utilization are concerned it is becoming increasingly clear that the nurse administrator must have a definite place at the highest level in the administrative services. In every state there should be a nurse administrator with a number of understudies to assist her acting in close co-operation with the administrators in the field of public health and curative medicine and at the same time obtaining experience in administrative work.

In the programme of hospital construction facilities for nursing services are frequently

given little consideration. Many kilometres have to be walked unnecessarily every day from corridor to corridor and much time is wasted that could be more profitably spent in attending to patients. The nurse should be given an opportunity to state exactly what her requirements are.

One additional point should be stressed and that is the question of part time work for married nurses. Married nurses can take a very effective part in supplementing all

aspects of hospital work, domiciliary nursing and public health work.

Sir Arcot Mudaliar stated how deeply he appreciated the discussions by these groups of the many points that had been raised. He hoped that when the final report was ready it would be sent to all Member States to as many nursing organizations as possible and to the non governmental organizations so that it would arouse greater enthusiasm and further efforts in this cause.

AN ACCOUNT OF THE PREPARATIONS MADE IN INDIA FOR THE TECHNICAL DISCUSSIONS

Miss T. K. ADRAVALA
Chief Nursing Superintendent, India

The decision that nursing was to be the subject for technical discussion at this Assembly was welcome news to nurses in India as elsewhere. As was said in the WHO document sent to governments and nurses associations, the selection of this subject offers a challenge and an opportunity to nurses throughout the world to participate in the preparation for these discussions. This opportunity was recognized and taken up eagerly and with enthusiasm by the Nurses Association and discussions were organized through its state branches. A small committee was appointed to make a summary of the discussions, a copy of which was forwarded to the International Council of Nurses, to the central and state governments and to the Indian Red Cross Society.

The various aspects of the topic—Nurses, their education and their role in health programmes—were discussed by groups of matrons, sister tutors, nurses in hospitals and nurses in the public health field. In a few states and at the nurses' annual conference doctors also joined in the discussions. Their participation was very welcome and also very helpful, and we felt it was evidence of the general interest aroused in nursing by its being chosen as a topic for this discussion.

The nurses (in each country) were invited to focus their attention and base their report on three broad questions:

1. What is the present role of nurses in meeting the health needs of people?
2. What do nurses see as their future role in (or contribution to) the total health programme?
3. What conditions, attitudes or educational facilities should be changed or developed so that nurses may successfully play the role envisaged?

The present role of nurses and midwives in India lies mainly in hospital work, that is in nursing administration and teaching, nursing and supervision in wards and special

departments. Midwives who are not qualified in nursing are also employed in maternal and child health centres for domiciliary midwifery. A few nurses work in the public health field. It is only the health visitors who are engaged mainly in the public health field that is the maternal and child health services. Inevitably some of the nursing time is taken up by non nursing duties but as there is some argument on what exactly constitutes non nursing duties the extent to which such duties affect nursing practice cannot be defined clearly.

Nurses themselves are beginning to feel dissatisfied with a role confined mainly to hospitals. What then do they see as their future role? We (I am speaking for the Association) expect nurses to be able to give good nursing care, to play their part in the prevention of disease and rehabilitation, to demonstrate and teach nursing and healthful living, to be called upon to appraise nursing needs and advise on how they should be met, and to supervise and give guidance and leadership to nurses and auxiliary nursing personnel. That this should be the role was readily agreed. The question was how were women of the right calibre—and men—to be recruited and prepared to carry out these functions, and when they were prepared, how was it to be assured that they would go out to work where they were most needed, that is, in the small towns and rural areas.

Recruitment was a question on which much discussion was centred. It is a common impression, not confined to India alone, that we do not get the right type of candidates, though in one direction we are fortunate in India, and that is that in most parts of the country recruits are not lacking in number. The different discussion groups mentioned local factors that hindered recruitment, but all came to the same conclusion, that candidates of the quality desired would not be attracted to nursing in sufficient numbers until the nursing schools offered a better educational programme and living conditions were improved. In fact, what was needed was the development of the right type of training which would develop and strengthen in our young students the qualities we considered desirable.

The development of character is one of the accepted aims of training programmes, but most of us feel that not enough attention has been given to so doing. We also felt that one of the main factors that hinder the development of desirable attitudes is that the number of nurses is not sufficient for the work that is to be done. It is difficult for a young student to learn to be conscientious and accurate and considerate when she is faced with more work she can possibly do in the time allotted. As one of the speakers at the nurses' conference said, "We must face the fact that all the needs that are within the range of nursing cannot be met as long as demand for nursing care is greater than the supply." It is usually in this kind of setting that nursing becomes depersonalized and routinized, and fails to live up to the criteria of a profession.

In a country where there is only one nurse to about 24,000 people, it is not surprising to find that all discussion soon veers round to this question of a shortage of nurses. Therefore, in considering what would be necessary for the preparation of good nurses, improvement of working conditions and an increase in the number of nurses were given primary importance.

All groups were unanimous in recommending that instruction and experience in public health nursing should be included in the basic course, as not only would it give the nurses and midwives the preparation needed for their role in the more comprehensive health services of the future, but also the experience could be invaluable in developing an understanding of and respect for the patient as an individual.

As I said earlier, another question was how could it be assured that nurses would go out to work where they were needed most. Finding and keeping staff in village centres have always been difficult but the problem has come more to the fore now because of the development of health services in rural areas. The reluctance of nurses—as of other staff—to take up permanent work in rural areas is understandable. Living in villages presents many difficulties. We feel that nurses would be less reluctant to go to rural centres if the assignment was for a limited period only; therefore one solution might be for all nurses in the state nursing service to be posted in rotation to rural areas. There is a state nursing service in many of our states, and the nursing staff belonging to that service can be transferred from one place to another as may be necessary. This proposal is being tried out and has had the support of the Nurses' Association though I may add it has not been found too easy in practice.

I have mentioned but a few of the points that come out of the discussions held all over the country. The tangible outcome of these reports, are being useful in the preparation of material for the South East Asia Regional Seminar on Nursing, which is to be held in Delhi in August this year. But the more valuable outcome—the interest and the sense of responsibility aroused on being asked to prepare material for discussion at an international assembly, the occasion given for clarifying ideas on all aspects of nursing, the development of techniques of discussion and consultation which will carry over to other matters and the satisfaction of working together for a worthwhile objective—these are intangible gains but none the less far reaching in their influence on the development of good nursing.

THE HEALTH ADMINISTRATOR VIEWS THE ROLE OF THE NURSE IN THE HEALTH PROGRAMME

Dr J. ALLWOOD PAREDES

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An attempt to give a very brief summary of the role of nurses in health programmes might appear pointless and meaningless were it not viewed in the perspective of its historical development. Apart from numerous other reasons this is because history gives us a better understanding of human nature which is precisely the field in which a nurse has to apply her scientific knowledge.

A proper assessment of the conclusions to be drawn from these discussions and their practical value for the future will also benefit by a review, however summary, of the evolution and development up to the present day of nursing as an art and profession.

Help for the weak and infirm which is the real motive implicit in the profession of nursing must have been a feature of communal life ever since it began. The need for help in the face of any pain, sickness or fear not susceptible of explanation linked the practice of religion closely with the practice of medicine. Even today this intimate association can be observed in primitive communities.

Later on in Greece religion was divorced from medicine which became rationalistic and scientific in a liberal atmosphere more favourable to free philosophical speculation and the objective investigation of the relationships between diseases and their causes. Although

Roman civilization did not notably advance scientific investigation in the medical field it *did* manage to consolidate the knowledge acquired up to then and apply it for the benefit of public health

Christianity came upon the scene later and transfused into Western culture the mystic sentiment of brotherly love among men. It was this Christian mysticism which inspired the lives and work of those whom we recognize today as being the pioneers of the nursing profession. From Phoebe in Corinth to Fabiola in Rome from the military religious nursing orders founded at the beginning of the eleventh century to the foundation of the Order of Sisters of Charity in 1633 religion was the dominant force which inspired the development of nursing and ennobled it.

As an historical fact it is particularly noteworthy that Christian nursing flourished at a time when medicine was being practised in very lethargical fashion in other words at a time when the physician's usual attitude towards his patient was characterized by arrogance and a disinclination to use the hands to relieve a tumour a wound or a sore—at a time when the doctor's scorn of manual labour reduced surgery to the level of a barber's trade and the doctor himself to the category of a courtier in the service of a small social group.

In the course of time and as a result of new ideas and trends religion ceased to be the dominant motive force of the nursing profession.

The altruism which was born of social conscience led to the advent of the lay nurse who found her noblest expression in Florence Nightingale.

Economic and social factors and scientific discoveries brought technological development to the nursing profession.

The gradual control of the great pestilential diseases the discovery of anaesthesia and of antiseptic and aseptic practices turned the hospital into a centre of scientific work and research. In the hospital the nurse has enriched her knowledge and assumed greater technical responsibilities in regard to the care of the sick.

That combination of social and economic phenomena which is generally referred to as the "Industrial Revolution" resulted in political pressures being brought to bear on governments so that they paid more attention to the well being and health of the masses even though the Industrial Revolution in fact developed in an atmosphere of free enterprise which was frankly hostile to any State intervention in the relations between capital and labour. Inevitably however the conflicting interests made State intervention necessary. The nurse together with the physician was called upon to assist and participate in the changes which were introduced in the exercise of her profession within the framework of the various social security schemes.

As scientific knowledge of preventive medicine increased and broadened the nurse was required to assume new and important responsibilities in the field of public health outside the walls of the hospital. With recognition of the fact that in addition to biological physical chemical and psychic factors ignorance also plays a decisive role as a cause of illness or its aggravation a vast field was opened to the nurse so that she was obliged to extend her technical knowledge and widen her humanistic education thereby adding to the prestige of her profession.

Finally we are witnessing the opening of another field of wide perspectives—as wide as the world itself—which offers a new challenge to the nurse. I refer to the field of international health. Caring for the sick in the hospital and advising families in the home are tasks for which the nurse requires ever greater technical knowledge and skills—skills which are

constantly more numerous and complex—and deeper understanding of human nature. International work—which often means that the nurse is transferred to a new environment sometimes with a different language a different culture—demands of the nurse a maximum of intellectual maturity firmness of character and great love of humanity.

Many nurses inspired by a strong sense of vocation, have magnificently fulfilled their mission in countries far from their own homes with entirely different cultures and traditions. They deserve—and we offer them—our unreserved admiration. If they have had their failures let us regard them with indulgence conscious that such nurses are pioneers in a new endeavour in a task for which there is as yet no training school.

We have glanced rapidly at the historical background to nursing. Against this background the general lines of the nurse's functions in their various aspects may emerge more clearly and in greater detail.

In her relation to the patient, the nurse cannot forget, without violating the noble traditions of her profession that the mind and the suffering body form an indissoluble whole neither must she lose sight of the fact that there is no substitute for the qualities of sympathy kindness and love for the relief of a patient's anxiety and pain. Such qualities are doubly indispensable in the hospital for two reasons: first because the patient is separated from his home and family and is at the mercy of the hospital personnel, secondly because the present trend towards narrow specialization, the exaggerated emphasis on technology and the overwhelming demands on his services generally prevent the physician from paying sufficient attention to the patient's psychological needs.

As medical technology progresses the nurse is obliged to extend her scientific knowledge over more varied and complex fields. Seeing that scientific truths are never absolute or permanent she is constantly forced to revise the knowledge she acquires.

The nurse must not forget that every hospital is a real or potential centre of scientific investigation and that any task of this kind involves the question of professional ethics and that sense of altruism which will be expressed in meticulous fulfilment of her obligations and diligent observation and adequate recording of phenomena associated with patients' pathological processes.

The hospital is also a training centre and the nurse must undertake the teaching of others. This teaching function is of paramount importance in view of the critical shortage of professional nurses and the consequent necessity for them to delegate many of their functions to auxiliary staff. In under developed countries this delegation of functions to auxiliary nurses is imperative on account of the tremendous dearth of professional staff and the length of time required to train them in sufficient number. In more developed countries the practice is today recognized as necessary for the reason—among others—that it is obviously a mistake for the professional nurse to be devoting her valuable time to relatively unimportant and not very technical routine tasks which can be perfectly well performed by specially trained auxiliaries under intelligent supervision.

Wherever she may work the nurse is part of a team to whose members she owes loyalty and co-operation and a sense of responsibility in planning and co-ordination within the programme of work. The auxiliary personnel under her must also be able to count upon her for adequate supervision.

In the field of preventive medicine and public health the nurse must be inspired by a zeal that will make her anxious to bring the benefits to be derived from the scientific conquests of medicine to the greatest possible number of persons.

I have referred previously to the nurse's function as educator. This function is inherent in the nursing profession and nursing arts but it becomes doubly important in so far as public health nurses are concerned. The public health nurse is a guide, counsellor and friend. Her field of action is wide and she has many favourable opportunities: she can fulfil her mission in the intimacy of the home, in the office interview, in the factory, in meetings of special groups and in public meetings. These opportunities lay upon her the obligation to keep herself informed not only with regard to the technical medical aspects of her programme but also with regard to the social and economic conditions of the community with which she is dealing.

We, as public health workers in the less-developed countries, are perhaps more conscious than other colleagues of the urgency of achieving a high level of health for our peoples. We are fully aware of the relationship existing between health and the economic and educational levels of the societies in which we live; we consider that we are engaged in an emergency effort for the raising of the standard of living of our peoples through the adoption of health measures in so far as such measures can influence educational and economic levels.

If we are to profit from the lessons of history, we must not lose sight of the fact that organized and systematic social action by governments for the purpose of solving the great problems of public health was not undertaken until many years after the discovery of the technical means by which such problems could be solved—too late to save a considerable number of unnecessary victims.

Looking to the future and remembering the lessons of the past, it seems to us that the public health nurse should appeal more directly to the civic conscience of the people she serves in order to promote a more ready political reaction which will favour the cause of collective health.

Wherever she works and whatever the limits of her responsibilities, the nurse in her service to humanity has one objective: to serve the whole man—not man as a biological entity or statistical unit only but man as a religious and political being, a member of a community. Her activities follow a definite path—that of the full circle or perhaps the infinite spiral which proceeds from the Good to the Beautiful and from the Beautiful to what is currently considered as scientifically True.

IMPLICATIONS OF THE NURSE'S ROLE FOR NURSING SERVICE AND NURSING EDUCATION

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The new role of the nurse

It has been said that the function of the nurse is undergoing a profound change. In 10 or 15 years it will be radically different from what it is now. The simple physical care which the nurse formerly gave to patients has become a complex function, the main objective of which lies beyond recovery and is, in the long run, the prevention of sickness and the promotion of health. The medical knowledge and the new techniques which a nurse must master in view of the advances in medicine, surgery and modern therapeutics are merely one aspect of this transformation. There are others which are no less important.

The economic and social level of the peoples is rising slowly, and the consumers of health services have new cultural, educational and psychological requirements which were unknown 20 or 30 years ago and which have great bearing on nursing today

The nurse is, in fact the person most directly and most constantly in contact with the sick person with families and with centres where health services are rendered. It is she who to a large extent, must provide the public with the health education which has become an indispensable part of modern medicine, both curative and preventive.

The health institutions formerly staffed by relatively small numbers of people are now adays invaded by innumerable specialized technicians and by different groups of auxiliary workers. These institutions have also become teaching centres where students of different professions often come to seek practical experience.

These circumstances create new problems in the solution of which nurses are naturally required to participate.

The excellent basic document prepared by WHO for the present discussions establishes a long list of functions which can be assigned to the nurse employed today in hospitals or in public health services. As might be expected the expression "nursing care" comes at the head of this list but in order to describe the impressive number of duties which are included in this function use is made of expressions such as performing, teaching, maintaining a healthy environment, evaluating, training, collaborating, planning and administering, participating, helping, giving guidance, and promoting health education. It thus becomes evident that the main function of the nurse that of giving nursing care, can no longer be interpreted in the narrow sense formerly given it but that this interpretation must now be broadened to include new activities of which some have just been suggested.

This being so great changes must be made in the organization of the nursing services and in education for nursing for as the scriptures put it new wine cannot be put into old bottles.

Repercussions of the nurse's new role on the nursing services

It seems essential to us that the aims and the organization of nursing services should be recast so as to harmonize with modern health plans.

Faced with a multitude of new duties which she may be asked to perform the nurse must make the difficult choice among those she intends to carry out herself and those which she will leave to other members of the nursing staff. In this connexion the decision taken by the nurse must be based on reason rather than on sentiment.

If the nurse is expected to give nursing care of a more skilled nature and deal with more complex psychological and social problems she must have the time necessary for the preparation and carrying out of such nursing care. In order to find such time she must be free from the obligation of performing herself a host of secondary tasks and daily duties which can without risk be left to duly trained auxiliary staff.

The unification and rationalization of premises, equipment and working methods are an efficient way to save time, avoid fatigue and facilitate routine work.

In nursing services where the quality and number of nursing staff raise problems of equal importance it seems obvious that the employment and distribution of such staff should be

organized with the greatest care and with an eye to economy. It is here that the administrative role of the nurse appears. At all levels of authority from the nurse superintendent of an institution to the nurse responsible for the smallest service unit each in her own place exercises an important administrative function. The nurse establishes in collaboration with her staff the plan of nursing care, supervises the application and evaluates the result of the care given, places each member of the available staff where he or she can best contribute, ensures satisfactory inter personal relations which have bearing on the patient's recovery and improve nursing service, and ensures co-ordination between the nursing service and other services provided by the health organization.

If the aim of the health services is to go beyond curative and individual treatment and tend towards the promotion of preventive and social medicine and the development of health for the benefit of the individual and the community, the nurse finds a new responsibility as educator by her example and by her advice she can educate the patient, his family and other persons using the health services. Nobody can replace the nurse in the teaching of nursing to student nurses and to the auxiliary staff which assists her.

In the nursing services of expanding health organizations the graduate nurse can no longer carry out herself all the nursing tasks, but she tends to become the keystone of these services. Here she is expected to be a skilled and reliable technician, a competent and far seeing administrator and a wise teacher. Her particular position places her at the cross-roads which channel towards the patient and those using the health services all that the various sciences can provide to bring about their cure and to ensure their health and well being.

Repercussions of the nurse's new role on education for nursing

If the role of the nurse has changed in order to meet the new health requirements of the people and if the nursing services have had to be reorganized in order to satisfy the new responsibilities which the nurse is called upon to assume, it would seem logical that the fundamental basis of education for nursing should also undergo profound changes.

Every profession has its roots deeply implanted in past experience and in a faith and draws its vital resources from traditions which have given it its ethical basis and which have traced out its future. In order to remain faithful to its charitable mission, the profession of nursing must develop and advance or run the risk of disappearing. It is impossible at the present time to train the nurse who will be required by the health services in 1960 or 1980 by calling on the same young person as formerly, by devoting the same time as formerly to her training and by offering her the same curriculum and employing the same teaching methods.

To facilitate training, both from the standpoint of the quality and the number of nurses which society will require 10 or 20 years hence, it is important that nursing schools should immediately take all the necessary steps to modify their action with respect to selection of trainees, utilization of the training period and curriculum and teaching methods.

The choice of candidates should be made with ever increasing care. The school of nursing should be able to attract girls with the best education, who are psychologically well balanced, dynamic and possessed of a social and civic sense—in short, girls who in their own country would be able to embark on any other type of social career.

The period of training, if it is not to be lengthened, should be better utilized. Much time could be gained if theoretical and practical preparation were better combined and centred on

what students should learn in order to solve problems likely to be encountered in their future professional practice rather than on the services which the student can render to the hospital

The curriculum and teaching methods call for modification. In the first place the atmosphere in which studies are pursued should be in harmony with the spirit of independence and the sense of responsibility which we wish to develop in the student. House rules and the requirement of living in are traditions the real worth of which require reconsideration. And what is to be said concerning the theoretical and practical curricula which in many countries are already too heavy? What we would like to see is not additional content but rather a broadening of the whole programme. A nucleus of biological sciences should be selected in terms of the nurse's functions and not by borrowing a few subjects from the syllabus of medical schools. The student's knowledge of social sciences should be developed especially in relation to sociology and psychology thus enabling her to understand that health is the result of an overall equilibrium of the human being and the adjustment of the latter to his environment. What the student nurse must know of the medical sciences she must learn simultaneously in three directions so as to be able to use her knowledge in caring for her patients in preventing sickness, and in promoting health. Of the techniques she will be taught only the basic principles should be retained for their practical application may vary in so many ways depending on circumstances and environment.

If the nurse is to become as has been suggested, the leader of the nursing staff if she wishes to be a useful member of the health team and an active citizen, she must acquire a sound knowledge of the principles of administration and teaching and must know how to apply such knowledge in her special field. She must also have knowledge of the organization of her profession and the relationship which exists between it and the other professions represented in the medico social team.

Still more important than the modifications of curriculum content are those which should be introduced in the teaching methods. Thus integration of the knowledge to be acquired in each field, a close connexion between such knowledge and practical experience calls for the assistance of duly trained nurse tutors with considerable teaching skill. Less time might be devoted to didactic teaching and greater use made of more active teaching methods such as clinical instruction and ward conferences, demonstrations and nursing care studies.

It seems that if practical experience were directed more towards the needs of persons utilizing the health services and the solution of their practical problems than towards the performance of the routine tasks of nursing service, the student would be better motivated towards learning. This alone could have considerable effect on her personal and professional development.

If basic education for nursing is broadened it will necessarily be less specialized in every way. During her years of training the student will only have acquired the principles which are basic to the art of nursing, and her experience will be limited. These are only the foundations of professional education on which the student must continually build. Post basic programmes are therefore a necessary corollary to the broad basic preparation which is suggested here.

This post basic education should be organized in such a fashion that nurses may keep abreast of new developments in their profession. It should offer them opportunity to specialize in different fields of nursing and prepare them to master the art of administration in nursing services and the science of teaching which they must constantly use in carrying out their functions.

Conclusions

The few remarks I have presented to you only touch on the vast subject proposed for the technical discussions of this Ninth World Health Assembly

The groups which are now to meet carry the responsibility of studying these problems more deeply and of throwing greater light on them so that the health services and the teaching institutions responsible for the education of nursing personnel everywhere may better unite their efforts in order to meet more adequately the health needs of the world's peoples

THE CONTRIBUTION OF THE DOCTOR AND THE HEALTH ADMINISTRATOR TO THE FUTURE DEVELOPMENT OF NURSING

Professor G. A. CANAPERIA

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Office of the High Commission for Hygiene and Public Health Italy*

Following the addresses given by the speakers who have preceded me my task becomes much more simple as a number of considerations which I had intended to deal with have already been discussed. Instead therefore of discussing the theory of the subject assigned to me I will endeavour to put before you a number of points which I feel may interest you and come up for consideration during the technical discussions which are to follow.

The evolution undergone by the nursing profession during recent years has obviously invested that profession with new duties and fresh responsibilities. It is certain that nowadays the nurse is the valued collaborator of the doctor, an indispensable member of the health team, whether her work lies in the field of prevention and prophylaxis, in the actual treatment of the sick, in the work of rehabilitation, or in the promotion of health for the individual and the community.

In these different fields the aims, the final goal and the actual interests of the medical and nursing professions are the same, and the best results are achieved when physicians and nurses work in close and harmonious collaboration in accordance with their respective functions and roles. Such collaboration must be based on mutual confidence and is governed by two factors: one is a knowledge and appreciation by the physician of the nurse's contribution to the common task; the other is the technical level of the nurse's professional training.

A better knowledge of the role played by the nurse in the hospital, at the sick bed, in the community or in health centres is in my opinion an essential element for the creation of that atmosphere of understanding and confidence which is an indispensable part of all team work. Medical students, however, have very little opportunity to learn anything about the importance of nursing care and the contribution which such care can make to successful treatment—as for example, the personal services rendered with technical competence to the patient, the application of dietetic standards suited to the different ailments, the special attention paid by the nurse to the patient's psychological and social problems, in order to take into account the inseparable unity of the body and soul. In this connection it would seem desirable that young medical students should be able to work as a team with nurses during their period of professional training, as this would enable future physicians to obtain a better knowledge and appreciation of the nurse's duties and to acquire that special spirit

what students should learn in order to solve problems likely to be encountered in their future professional practice rather than on the services which the student can render to the hospital.

The curriculum and teaching methods call for modification. In the first place the atmosphere in which studies are pursued should be in harmony with the spirit of independence and the sense of responsibility which we wish to develop in the student. House rules and the requirement of living in are traditions the real worth of which require reconsideration. And what is to be said concerning the theoretical and practical curricula which in many countries are already too heavy? What we would like to see is not additional content but rather a broadening of the whole programme. A nucleus of biological sciences should be selected in terms of the nurse's functions and not by borrowing a few subjects from the syllabus of medical schools. The student's knowledge of social sciences should be developed especially in relation to sociology and psychology thus enabling her to understand that health is the result of an overall equilibrium of the human being and the adjustment of the latter to his environment. What the student nurse must know of the medical sciences, she must learn simultaneously in three directions so as to be able to use her knowledge in caring for her patients in preventing sickness and in promoting health. Of the techniques she will be taught only the basic principles should be retained for their practical application may vary in so many ways depending on circumstances and environment.

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This post basic education should be organized in such a fashion that nurses may keep abreast of new developments in their profession. It should offer them opportunity to specialize in different fields of nursing and prepare them to master the art of administration in nursing services and the science of teaching which they must constantly use in carrying out their functions.

the gap which separates preventive medicine from curative medicine and to include in medicine considered as a whole all the various forms of health treatment from the prevention of sickness to the diagnosis and early treatment of the patient and the work of rehabilitation

We see the physician of the future not merely as a doctor at the patient's bedside administering the requisite treatment but rather as the custodian of the good health of the individual and the community. I consider that the same conception should also apply to the nurse

Can it be denied in fact that the assessment of the patient's social and family background which is so important for diagnosis and treatment the attention paid to the patient's physical mental and social needs the teaching of hygiene which finds such a fertile soil in the patient's mind and whose influence extends beyond the actual place of treatment to the family and the community do not come within the field of preventive and social medicine? Does not the very care of infectious patients care which is of so great an importance involve the concept of prophylactic measures to be taken for the protection of the individual and community? Moreover the health visitor must have had good training in the care of the sick in order to be able to explain her mission and to be well received in families workshops and communities and to gain the confidence of those she aids. Indeed and rightly so the basic document prepared for the technical discussions mentions among other duties incumbent on nurses employed in public health bodies "giving nursing care to the sick at home or at work administering treatments which have been prescribed by the attending physician and making accurate observations of the patient's physical and emotional reactions to treatment". This conception may perhaps necessitate a revision of the curriculum perhaps for hospital nurses greater emphasis should be put on preventive and social aspects while for medico-social workers everything should be done to give them as full a training as possible in nursing care proper

Physicians and nurses belong to the same "health family" and must work as a team in full and harmonious collaboration each with his or her functions role and responsibilities. The nurse must take part in this team work armed with good technical training which must not cease when she leaves school or takes her diploma but which should continue throughout her professional career thanks to ever more extensive and fresh experience. The physician can and should assist in this further training with his advice and leadership in the common task. But when all is said and done technical training is not enough to make the complete nurse if it is not backed by the spiritual qualities such as devotion altruism kindness and charity which in the past have animated those who have made such noble contributions to the story of the care of the sick. Technical training and the necessary spiritual qualities make the nurse a real missionary in the service of mankind

of collaboration which should condition their activities. Such understanding cannot fail to be promoted by certain joint courses for medical students and nurses dealing with various problems which are specially important in the field of nursing such as mental health and health education.

The second factor which includes very thorough training, a high professional level and the sense of responsibility with respect to her duties which the nurse must possess is certainly of great importance, and this leads me to make a few remarks on a much discussed problem which has already been raised here, namely the conflict—in my opinion more apparent than real—between quality and quantity as regards nursing staff.

It is undeniable that the present ever increasing requirements of nursing care raise the problem of the number of trained personnel which in most countries seems inadequate to cope with these needs. This has led to a solution consisting in the employment of less qualified auxiliary personnel, with curtailed training to whom some of the qualified nurses' duties can be delegated. In many cases the adoption of this solution is inevitable. I would like however to mention some of the misgivings I feel on this point. The opinion which the general public and the medical profession have of the nurse is essentially based on the quality of her professional services. The inclusion of less fully trained personnel in the nursing services, personnel whose duties are rather difficult to define and delimit is to my mind, likely to have a harmful effect on this opinion.

The distinction between the qualified nurse and the auxiliary nurse especially when both are called by the one name, is not easily understood. The profession is identified with the actual functions performed. Furthermore, direct contact with the patient is an essential part of nursing and it is by this continuous contact and by the relationship thereby created between the patient and the nurse that the latter wins the patient's confidence and can give the psychosomatic assistance and exercise the educational influence which are so important in nursing care. Is it possible to entrust such functions which require technical training and special sensitivity to an auxiliary nurse? My opinion is that such a solution if it be adopted because absolutely necessary must nevertheless always be considered as temporary and provisional and that auxiliary staff should be replaced by qualified staff as the latter becomes available.

Of course it is true that recruitment difficulties are encountered practically everywhere but here perhaps the collaboration of the medical profession may be valuable. The physician, even in this period of highly developed specialization still acts as adviser to the families who have recourse to his services. By stressing the importance and nobility of the nursing profession and the technical level which that profession requires the physician may help to a considerable extent in changing the attitude of certain sections of the public and in arousing interest in the nursing profession among well educated young women with good social background.

I have so far avoided any special reference to the nurses employed in the public health services or as health visitors or medico social workers as they are called in various countries because their place and duties have already been very thoroughly discussed by my colleague Dr Paredes. Nevertheless I want to make a few remarks on what may be termed the various specialized branches of the nursing profession.

Obviously a distinction must be made between the nurse employed in a hospital and one who works in the community or in a public health organization. Yet I still feel that their training should not be so separated. Indeed in medicine we have a tendency to bridge over

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**Insecticides, Rodenticides, Molluscicides,
and Spraying and Dusting Apparatus**

This manual contains the various specifications established by the WHO Expert Committee on Insecticides at its second third fourth fifth and sixth sessions for the various pesticides against vectors of diseases of man and for apparatus for applying those pesticides. It is intended to serve as a guide for users of these products and sprayers and for manufacturers.

The work is divided into four parts dealing with insecticides rodenticides molluscicides and spraying and dusting apparatus respectively. The first and longest part gives specifications for technical grade insecticides water dispersible powder concentrates emulsion concentrates and dusting powders and for auxiliary chemicals (anti louse chemicals synergists and anti-oxidants). The two parts dealing with rodenticides and molluscicides include specifications for technical grade products and for two concentrated rodenticide preparations. The fourth part gives specifications for compression sprayers hand sprayers stirrup pump type sprayers and for hand carried and front carried dusters. Annexes contain photographs and diagrams of various types of apparatus and a number of tables.

This volume succeeds the work entitled Insecticides Manual of Specifications for Insecticides and for Spraying and Dusting Apparatus published in 1953 in a loose leaf binder. The numerous additions and modifications to the original specifications have made it necessary to re issue this work in a new format.



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Schools and Programmes in Europe
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MILIVOJ PETRIK

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ANNEXES

Duration of undergraduate studies in civil engineering or sanitary engineering

The education and training of sanitary engineers in Europe report on a WHO
symposium

Definition of environmental sanitation and references to the education of sanitary
engineers in WHO expert committee reports



CHRONICLE OF THE WORLD HEALTH ORGANIZATION

CONTENTS

	Page
Trachoma control a review of WHO-aided campaigns	231
Environmental sanitation in Africa	239
A new problem in drug addiction	243
International action for the abolition of heroin	245
Epidemiological and Statistical Information	
Cancer of the digestive organs and peritoneum	248
Whooping cough morbidity and mortality statistics	252
Reports of Expert Groups	
Psychiatric nursing	258
Food additives	259
Biological standardization	260
Health Legislation	
Venereal diseases a study of existing legislation	261
Notes and News	
Eighteenth session of Executive Board	262
Seminar on diarrhoeal diseases in Latin America	263
Syria undertakes malaria eradication	263
Expert Committee on Rheumatic Diseases second session	264
Fourth Regional Nursing Congress in the Americas	264
Study Group on the Psychobiological Development of the Child	265
Fifth European Seminar for Sanitary Engineers	266
Conference on training in hygiene and preventive and social medicine	266
Agreement on African Office signed	267
Survey of Argentine health services	267
Public health programme for Assam	267
Blood bank for Jordan	267
Environmental sanitation studies in Taiwan	268
Health worker victim of rabies	268
People and places	268
Obituary Dr E. M. Loure	269
Review of WHO Publications	270
	271

SCHEDULE OF MEETINGS

- 5-25 August Seminar on Nursing Education New Delhi
- 7-11 August Study Group on the Effects of Radiation on Human Genetics Copenhagen
- 19-25 August PASB/AMRO Seminar on Smallpox Vaccination, Lima
- 7-13 September Regional Committee for the Western Pacific seventh session Manila
- 9-15 September PASB/AMRO Fourth Regional Congress on Nursing Mexico City
- 10-13 September Regional Committee for Europe sixth session, Geneva
- 10-30 September PASB/AMRO Training Course for Operators of Waterworks Mexico City
- 16-29 September Regional Committee for the Americas eighth session Guatemala
- 18-29 September Seminar on Child Guidance, Lausanne
- 19-25 September Regional Committee for the Eastern Mediterranean sixth session
Sub-Committee A Teheran
- 20-26 September Study Group on the Psychological Development of the Child fourth
meeting Geneva
- 24-29 September Regional Committee for Africa sixth session Luanda
- 24-29 September Regional Committee for South East Asia ninth session New Delhi
- 25 September WHO/FAO Regional Nutrition Committee in South East Asia Tokyo
2 October

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TRACHOMA CONTROL

A Review of WHO Aided Campaigns

Trachoma has been known to exist ever since history was first recorded. Its importance as a cause of human suffering and economic loss over much of the world places it in the forefront of disabling diseases. No race is immune from the scourge though some races are less susceptible than others.

In 1951 the Fourth World Health Assembly recognized that "in a great number of countries trachoma and other related ophthalmias constitute an urgent health problem" and that full consideration should be given to "effective preventive measures" against these diseases on an international level. Even previously in 1948 a study group convened by WHO and the Office International d'Hygiène Publique had reviewed knowledge of trachoma and had recommended that WHO set up an expert committee on this disease. The Organization accordingly established its Expert Advisory Panel on Trachoma from which members were drawn for the first meeting of an expert committee in 1952.¹ This committee supplied authoritative technical guidance for work on trachoma, so that subsequently the UNICEF/WHO Joint Committee on Health Policy was able to include this among the diseases for the control of which the two agencies would assume joint assistance. Following the guiding lines laid down by the Joint Committee pilot projects were started in 1953 in those countries which had asked for assistance in trachoma control. Since then the original projects have been expanded and new ones have been initiated.

In the development of activities in trachoma control WHO has played a dual role. It has

supplied countries which are engaged in control campaigns or are anxious to launch or expand them with special consultants who advise on the planning of new or extended projects, assist in the collection of epidemiological and other necessary data or assess the results of campaigns as the case may be. Secondly by organizing programmes of exchange of scientific information and of co-ordinated research the Organization has helped to promote among specialists from different countries a better understanding of various debated points relating to the etiological, clinical and therapeutic aspects of trachoma. Such programmes have already given interesting results.

A brief account of some of the WHO aided trachoma-control campaigns in various countries follows.

TAIWAN

Under the present campaign in Taiwan which started as a pilot project in 1953 all the schoolchildren in the country suffering from trachoma and associated ophthalmias are being treated and plans are on foot to extend the examination and treatment services to all the family contacts of the children. An interesting feature of the campaign is the method of carrying out the treatment. Pupils in the lower classes are treated by the teachers and pupils in the higher classes treat each other under the supervision of a teacher. Treatment is carried out twice daily. The diagnosis of infection and the control of treatment are the responsibility of a number of teams each composed of one doctor and one nurse specially trained for the purpose.

There is to be a long term evaluation of this campaign, designed to find out how effective the successful treatment of a high percentage of the school age population will be (a) in controlling the disease in the country as a whole, and (b) in reducing the present high incidence of blindness and other disabling sequelae among the population. To this end, WHO has recommended that a survey be carried out on a representative sample of the adult population, so that there will be a basis for comparison when the children now under treatment reach adulthood.

Treatment in schools

Up to 15 February 1956 that is after seventeen months of work, 438 trachoma teams had examined 1 583 074 school children. Of these, 849 242 (54%) were suffering from active trachoma and 290 836 (19%) from conjunctivitis. These 1 140 078 infected children were put under treatment in the schools with the collaboration of 1455 school principals and 26 826 teachers who had received the necessary training.

After two months of treatment, 1 070 073 children were re-examined. 447 731 (42%) were pronounced cured and 420 969 (39%) improved. 17% showed no change and only 2% an aggravation of their condition. All the children not recognized as 'cured' were submitted to treatment for further periods each lasting for one month, re-examination was carried out at the end of each treatment period.

By April 1956 a total of 854 934 (75%) children had been cured and 143 406 were still under treatment.

Treatment of family contacts

The extension of the campaign to the family contacts has not yet been fully developed. Two schemes have been tried out (a) using schoolchildren of the higher

classes (who have already gained satisfactory experience in treating their school mates) to treat their families and (b) enlisting the aid of the local Women's Club Association. Although the trials have been carried out on a small scale only, and for too short a time the results are sufficiently promising for the expansion of this aspect of the programme to be envisaged.

* * *

Without doubt, the campaign in Taiwan has been effective. The development of a great number of serious and often disabling sequelae of trachoma and conjunctivitis has been prevented, and more than 15 million schoolchildren and their families have gained a sound knowledge of the problems of trachoma as a result of the educational aspects of the campaign.

MOROCCO

In Morocco, as in other countries of North Africa and the Middle East the campaign is directed against seasonal epidemic conjunctivitis as well as trachoma. Over wide stretches of the country, and particularly in the south virtually all the inhabitants contract both diseases in early childhood. Epidemics of conjunctivitis "the bed on which trachoma is born" recur annually and trachoma, once acquired may persist through out life if not treated.

The campaign involves three distinct activities:

(1) systematic case finding and collective treatment of trachomatous schoolchildren,

(2) a field campaign against epidemic conjunctivitis during the late summer and autumn, and

(3) research aimed at furthering the knowledge of the local bacteriology and epidemiology of the two diseases and at developing simpler more effective and more economical methods of treatment and control.

FIG 1 TRACHOMA
CONTROL CAMPAIGNS



This Berber woman brings her child to have its eyes treated with antibiotic ointment at Ait Saoun Morocco. Each visit involves walking a distance of twenty miles

Phot. Belin Rabat

Treatment in schools

This programme has two phases. In the first, case finding surveys are carried out on all children in new groups at schools and all active cases of trachoma are treated collectively. In the second, which is in effect a maintenance operation, cases already treated are watched and any relapses or reinfections are given further treatment and children attending school for the first time are examined and new cases of trachoma are treated. This work was begun in the school year 1953/54 and by the end of 1955 about 90 000 children had been treated. The results

which were assessed by a WHO ophthalmologist and statistician in a series of trials involving more than 12 000 children showed rates of cure varying from 80% among children in the better-class communities to 55% in the poorest districts. Subsequent re-treatment of the failures with combined local application of antibiotics and oral administration of sulfonamides—as recommended in the first report of the WHO Expert Committee on Trachoma—has given more than 80% cures. The target number of new cases for treatment in 1956 is 40 000.

Field campaign against seasonal epidemic conjunctivitis

For obvious practical reasons, the routine course of mass treatment by teams had to be reduced to a minimum, and the following standard course of treatment was given: application of Aureomycin ointment twice daily to the eyes on three consecutive days, this three day cycle of treatment being repeated each month throughout the epidemic period July-November. Owing to the very high incidence of infections it was decided to treat the entire population: pre-arranged time tables enabled each team to deal with about 10 000 people every month.

This collective treatment had a dramatic effect in suppressing the seasonal epidemics of conjunctivitis, and, through its success in curing the majority of acute and sub-acute cases and in preventing the serious corneal complications, it immediately won the enthusiastic co-operation of the people. It was, however, less effective in the many chronic mild cases and sub-clinical carriers, so that a large reservoir of infection remained from which fresh epidemics would arise during the next fly-breeding season. Since it was thus obvious that no permanent control of epidemic conjunctivitis or trachoma would be achieved by mass treatment for one season only, and equally clear that mass treatment by teams could not be continued indefinitely on a country-wide scale, a policy of gradual introduction of self-treatment was adopted and is now being developed.

No programme in self-treatment can succeed unless the people themselves are convinced of the value of treatment. The first essential therefore is for the teams to do all they can to stimulate the interest and collaboration of the people during the initial season of mass treatment. Once the people's enthusiasm is aroused, the way is paved for the second step—self-treatment under supervision. This is introduced during the next

epidemic season, when the teams visit each community once a month distributing fixed quantities of antibiotic ointment free of charge to the head of the family, explaining clearly to him how to use it and giving simple talks on elementary health principles and ocular hygiene. From then onwards the inhabitants are encouraged to treat themselves and to buy the antibiotic ointment from the village stores, where it has been put on sale by the Government at a low price. Arrangements have been made for free distribution of the ointment to those who cannot afford to pay.

This scheme of mass treatment has been put into operation in three areas—Ouarzazate, Tafilalet and Agadir/Figuig—with a total population of 353 000. All the 120 000 inhabitants of Ouarzazate are now on self-treatment. The 138 000 persons in Tafilalet, where treatment was started in 1954, a year later are on self-treatment under supervision, and the remaining 95 000 (Agadir and Figuig) who were first treated in 1955, will be at this stage during the next epidemic season.

Research

In an experimental sector, a series of field trials has been carried out under the direction and supervision of a WHO team to determine the relative efficacy of the following operations applied singly and in combination in the control of seasonal conjunctivitis and trachoma:

- (1) mass antibiotic treatment during the epidemic seasons, as described above,

- (2) mass prophylactic treatment with sulphonamides administered orally, at the beginning of the epidemic season to reduce the number of carriers,

- (3) fly control by insecticides and other means.

All these measures proved effective but none achieved complete control. Collective

prophylactic treatment with sulfonamides gave good results experimentally but there are serious difficulties in applying this method on a large scale. Application of insecticides was successful in temporarily controlling the fly population but a long term programme of environmental sanitation would be required to bring about a significant and permanent reduction in this important transmission agent. From a practical point of view therefore mass treatment with antibiotics during the epidemic seasons remains the method of choice.

In another experimental sector where mass treatment of 1500 people was carried out for

three successive seasons the epidemics of bacterial conjunctivitis were successfully controlled and the underlying trachoma in all age groups showed marked improvement nearly 50% of the cases being cured.

In a third sector studies are being continued on the bacteriological "curve of recovery" after treatment with a view to improving the timing and efficacy of mass treatment.

TUNISIA

The epidemiological pattern of trachoma and seasonal conjunctivitis in southern Tunisia is similar to that in Morocco and the

FIG. 2. TRACHOMA CONTROL CAMPAIGNS



The WHO team leader of the project in Egypt and his national counterpart examine a boy who is blind in one eye as a result of a former attack of complicated conjunctivitis.

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ENVIRONMENTAL SANITATION IN AFRICA

The first Seminar on Environmental Sanitation in Africa was held in Ibadan Nigeria from 12 to 17 December 1956. This Seminar which was arranged by the WHO Regional Office for Africa in co-operation with the Government of the Federation of Nigeria and that of the Western Region of Nigeria was attended by 40 doctors engineers health inspectors scientists and others from 13 countries or territories. It was presided over by Médecin Général M. A. Vancel Inspecteur des Instituts Pasteur d'Outre-Mer (Paris).

The account of the Seminar which follows was prepared by the Rapporteur Mr P. C. G. Isaac Senior Lecturer in Public Health Engineering University of Durham Newcastle upon Tyne England. The report of the Seminar has just been released in mimeographed form.

The well being of the people of Africa

The well being of any community implies the enjoyment of a comfortable standard of living by the members of that community. This obviously demands that the basic economy of the people be flourishing. In spite of the increasing industrialization of all parts of Africa the fundamental wealth of this continent lies in agriculture which not only feeds the people but also provides the exportable surplus that generates wealth. A prosperous agriculture in turn depends on the physical status of the most important element in agriculture the farmer. In short the "physical mental and social well being" of Africans can be improved only as a higher standard of physical well being is achieved. Health is the key to wealth and happiness.

In all parts of the world the earliest function of medicine has been to relieve individual pain and suffering and in early times the action of the environment on man was accepted without any attempt being made to

control it. The last century has seen a change of emphasis. It is now recognized that the environment can be controlled—that indeed it must be controlled if man is to make the best of his dwindling resources. In a continent such as Africa where over large areas the environment is inimical to man the challenge is especially urgent and the opportunities almost unlimited. So much needs to be done that even the stoutest hearted may be daunted but as was pointed out at the Seminar something can always be done and without a start no progress is possible. The cost may be high but the cost of doing nothing must be higher.

Environmental sanitation

More than a century ago the profession of civil engineering was defined as the control of the great forces of nature for the use and convenience of man. *Mutatis mutandis* this is an excellent and challenging definition of environmental sanitation implying that all factors which can affect man's well being for good or ill must be brought under control.

Much of the material in this article was based also for report on the Seminar by M. Isaac, which appeared in *British Hygiene (London)* 1956, 31, 349-351.

A limited number of copies of this document are available through the WHO Regional Office for Africa, Box 243, Tunis, Tunisia.

initially reduced the incidence of clinical cases of conjunctivitis but, while the incidence remained low in one of the villages, in others there was a reappearance of clinical acute and sub acute conjunctivitis within two to three weeks or even in one village, within five days. Bacterial infections were reduced but were also generally high again a few days later. This suggests that reinfections started quickly, probably because the treated children were too small a section of the population and were easily reinfected by people from the other age groups. Lack of control of infected flies might also have played a role in the reinfections.

With regard to the treatment of school children results confirmed the findings in Morocco. No difference was apparent in the results of continuous treatment over 60 days and intermittent treatment consisting of three days' treatment per month repeated at monthly intervals for seven cycles.

It is still too soon to attempt any evaluation of the efficacy in trachoma control of the measures to improve general sanitation and to control flies.

OTHER COUNTRIES

In addition to aiding in the projects described above WHO and UNICEF are helping to strengthen trachoma control activities in Yugoslavia and Spain and to initiate such activities in Indonesia.

The two international organizations are

supporting an already active national trachoma control service in Yugoslavia by supplying drugs, equipment, and transport and by training staff. During the first phase of the internationally assisted operations the Government treated 9000 children. Of particular interest in the Yugoslav campaign is the fact that in this country trachoma is not associated with bacterial epidemic conjunctivitis. However the frequency of a type of non trachomatous follicular conjunctivitis may give rise to difficulties in differential diagnosis which may influence the evaluation of the results of the trachoma control. For this reason a programme of investigation has been included in the plan of operations.

In Spain too international aid consists largely of the provision of drugs and technical equipment transport, and training materials, with the actual control activities being carried out by the national trachoma control service.

Trachoma is of great social importance in Indonesia, as a WHO consultant who visited the country in 1954 reported. Although there are difficulties in drawing up a programme suitable for local conditions because of a scarcity of ophthalmologists and a lack of exact knowledge of the disease in this country a small scale project has been started aiming to demonstrate the efficacy of Aureomycin treatment. About 3000 school children are being treated in four different areas of Java and Sumatra. Satisfactory progress has been reported but no assessment of results is yet available.

Juvenile Epilepsy

Assessing the importance of juvenile epilepsy as a public health problem a WHO study group recently pointed out "The evidence that comes indirectly from family surveys made for the purpose of genetic study shows that about 6% of the total (adult and child) population have had some sort of convulsive episode at some time in their lives."

The report of the WHO Study Group on Juvenile Epilepsy is scheduled for publication by the Organization within the next few months.

territories This variation in turn affected the nature of the programmes which were reported upon some in considerable detail It was agreed however that the liaison between the health service and the public works and other relevant departments in the field of environmental sanitation should be very close

The engineer as the man whose basic training is designed to enable him to control the environment has a special responsibility It is therefore sad to note that in many African territories the engineer without always being aware of or responsible for the consequent changes in the physical well being of the people carries out works which in effect change the environment A much closer integration of the work of these engineers with the medical and community development agencies is highly desirable—even essential

Co-operation of the people

Almost every Seminar contribution emphasized the importance of gaining the co-operation of the people affected by the sanitation programme It seems that where major epidemic diseases are concerned it is necessary for the health service to act in advance of the local public opinion but that in all other cases the acquiescence and if possible the co-operation of at least the influential members of the community are essential A really successful programme is one based on the demand of the people clearly expressed In such cases active support both in money and labour will be forthcoming and the sanitation programme will have achieved a flying start

The co-operation of the people can be realized through health education which therefore has at least two functions to inculcate the principles of good health and hygiene and to stimulate the demand for schemes of environmental control Without

the assistance of health education satisfactory use and maintenance of sanitary installations are unlikely

General experience shows that a most valuable approach for the health educator is through women and children and through local organizations Whoever may design the programmes of health education the actual field work must be carried out by people as close as possible to those whom it is desired to affect In this way the artificial barriers so often created can be avoided

Since sick people are usually receptive to instruction concerning health principles it is desirable to ensure that all those concerned with any phase of curative—as well as preventive—medicine play their part in health education

Professional co-operation in environmental sanitation

While it is the medical officer who must take responsibility for the over all health of an area it is clear that the promotion of well being through control of the environment demands the co-operation of many other professions notably the engineer the health educator the nurse the sanitarian (or health inspector) the teacher and others The public health engineer must play an especially valuable part at the highest levels At the field level however much of this work will be carried out by the sanitarian for whom further training is therefore most desirable

In the remoter parts of Brazil for example where there was no existing health service it has been found most satisfactory to set up a special public health agency in which the sanitary engineer plays an executive as well as an advisory role It might be suitable for other areas to adopt this idea

In the rural areas particularly it is necessary to train Africans for environmental sanitation work. It was agreed that for the

It appeared at the outset of the Seminar discussions that this concept was strange—and even chimerical—to many of the participants. As a result the discussions started slowly. Visits to health centres, hospitals, and water and sewage treatment plants, however, were most valuable in bringing the matter into focus and stimulating the Seminar's work.

It was felt that since this was the first African seminar on this subject the discussion should be kept for the most part on a general plane. It was essential to agree on the philosophy and principles of environmental control and to assess its possibilities and the methods of achieving it. A number of communications were presented on the aims and achievements of environmental control in some of the African territories. It was useful to consider environmental sanitation in four phases which are completely interrelated: evaluation of the problem, assessment of resources, planning the sanitation programme, and carrying the programme into effect. It was repeatedly emphasized that there was no part of the world which could not benefit from environmental sanitation and in which nothing could be done in this matter. This was of course true of Africa where in addition to the environmental factors traditional habits, costs, and other special local considerations must be borne in mind.

Since many African peoples are rapidly approaching political maturity it is important that an early start be made in controlling the environment in this continent so that the African may become heir to a healthy community.

A study of the problem

In under developed territories including Africa inadequate sanitation is a major epidemiological factor. It is not sufficient however to consider the control of the

environment solely from the epidemiological point of view. It is essential to make an overall assessment of the ecological factors involved, including of course the social, political, and economic as well as the physical aspects. In a first approach to evaluation, an environmental survey is invaluable and must include the factors outlined above. It is recognized that an environmental survey is an extension of the older sanitary survey. The Seminar participants felt that it was desirable that WHO should consider the requirements of such a survey with a view to establishing methods and standards.

The delicate balance between health and disease and between hygiene and natural immunity was discussed. In this respect it is essential to be able to judge the final effects of a sanitation programme. Inadequate basic epidemiological data demonstrate the urgent need for research in this field. While it is most necessary to undertake an environmental survey with an open mind it was felt that under African conditions the most important problems would usually require first consideration of water, waste disposal, housing and disease vectors.

Elaborating a programme

It was clear that no formula or prescription was universally applicable in planning a programme of environmental sanitation. In each case local conditions, both as to needs and resources must be taken into consideration. What is initially possible in any particular locality may often depend on factors usually considered irrelevant but to the worker in this field no factor is irrelevant which can aid or hinder his work.

A number of papers and oral contributions described the administrative organization in Brazil, Sudan, Belgian Congo and British and French African territories. It was seen that owing to historical development no one kind of organization was suitable to all

A NEW PROBLEM IN DRUG ADDICTION

One of the functions which WHO inherited from the Health Organisation of the League of Nations is that of acting in an advisory capacity in the international control of drugs liable to produce addiction. To carry out this function the Organization depends upon an expert committee whose members consider at each session notifications from governments concerning particular drugs, papers presented by its members on addiction problems in various countries and other technical matters. This committee then makes recommendations as to whether certain drugs should be brought under international control. These recommendations are subsequently transmitted to the Secretary General of the United Nations which has the authority for notifying governments that the drugs in question should be subject to the relevant international conventions.

In the most recent report of the Expert Committee on Drugs Liable to Produce Addiction¹ attention is called to a drug addiction problem which is not yet considered of international significance but which is of great seriousness in certain areas: the abuse of amphetamine popularly known as "wake amine". Of particular interest is a memorandum on the amphetamine problem in Japan which is included as an annex to the committee's report. The information which follows is based on this memorandum.

THE ABUSE OF AMPHETAMINE IN JAPAN

Abuse of amphetamine was first noted in Japan in 1945 and a marked increase in the

number of misusers of this drug has taken place since the summer of 1948. A nationwide survey of addicts is now being made by the Ministry of Welfare. According to an investigation by the Ministry in May 1954 72% of 127 142 persons interviewed had taken amphetamine and 18% were abusing it. In May and June of the same year 10 148 persons were taken into custody because of offences under a law aiming to control the drug; among these offenders 5320 (52%) were found to be addicts.

All reports indicate that the highest incidence of addiction to the drug occurs among those in their teens and twenties. A survey of the number of addicts revealed that in the city of Kurume in Kyushu Island about 11% of the whole population were wake amine addicts; however the proportion was about 5% among those between the ages 16 to 25. In another investigation it was found that of 117 addicts admitted to a certain hospital between 1948 and 1953 40% were between 21 and 25 years of age and 80% between the ages of 16 and 30. There were no addicts over 40 years old. Of these addicts 40% had first used the drug between the ages of 15 and 20 and 30% between the ages of 21 and 25. Further evidence of the seriousness of the problem among the young was supplied by a survey (in August 1954) of juveniles confined in reformatories: 33% were familiar with the use of amphetamine.

During the post-war period 1945-49 when amphetamine was available to anyone it was used by students who desired to be more effective in study or in sports; by night workers for overcoming sleepiness; and by some persons for curiosity or because they wanted to enjoy night life. In recent years however there has been an increase in cases in which

¹Wld Hlth Org. *Ann. R. & Ser.* 1956, 102. For review of reports on whole, see Ch. on Wld Hlth Hlth Org. 1956, 10-144.

special problems presented by tropical Africa it is essential for the training of the medical officer to emphasize public health and preventive medicine the fundamental importance of the 'curative' physician's properly appreciating his continuous role in prevention was stressed. The civil engineer too, during his undergraduate studies should be broadly trained so as to be able to take account of the biological aspects of engineering. The specialized public health officer or public health engineer will normally be trained at the post graduate level after his undergraduate studies in medicine or engineering.

While it is true that there are in Africa very few public health or sanitary engineers the immediate openings for these specialists are not great and the present training programmes in many parts of the world can satisfy the demand within a reasonable time. However if in Africa as elsewhere environmental sanitation is to be a dynamic contribution to the welfare of a community it is necessary that there should be increasing openings for public health engineers working in the closest harmony with medical departments.

Conclusions of the Seminar

The Seminar heard descriptions of some interesting and successful schemes in certain phases of environmental sanitation. These served to demonstrate that Africa is a continent especially requiring environmental sanitation and one in which the results of environmental sanitation can be expected to be almost dramatically effective.

It is possible to state briefly the underlying principles of environmental sanitation as follows:

1 The real benefits of environmental sanitation to the well being of a people are clearly recognized.

2 The environmental sanitation unit must be established in close relationship with the health service of the country. Its work must be based upon the country's needs and resources and it must have staff competent to plan and direct all phases of the work.

3 Sanitation must be regarded as an essential part of the whole health service of the country. It must not be considered as a separate entity.

4 It is essential to draw up a long term plan for environmental sanitation so that individual programmes and projects may be fitted into the whole.

5 It cannot be emphasized too strongly that it is always possible to do *something* helpful in environmental hygiene under *any* conditions and with *any* financial resources. Frequently the simplest things are the most important.

6 Nothing will be achieved until a starting point has been selected and action initiated—always the most difficult step. Thereafter the orderly progression of work and achievement may be realized.

Environmental sanitation is essentially a human problem, one of human needs and of human relationships. The provision of a health-provoking environment is a basic human duty.

Malaria Conference Report

The full report on the WHO sponsored Malaria Conference for the Western Pacific and South East Asia Regions (Second Asian Malaria Conference) of which a detailed account was given in the September 1955 number of the *Chronicle* (Vol. 9, pages 253-59) has now appeared as No. 103 in the *WHO Technical Report Series*.

The WHO Expert Committee on Drugs Liable to Produce Addiction had its attention drawn to the abuse of amphetamine and amphetamine like substances in other areas as well as Japan. It proposed to "keep close watch on the situation" but was of the opinion that the problem was at this stage one for national rather than international action.

More recently the Commission on Narcotic Drugs of the United Nations Economic

and Social Council expressed a similar view. At its eleventh session held in Geneva from 23 April to 18 May 1956 the Commission also considered the question of amphetamine and amphetamine like substances noting that these drugs were being more and more widely used in certain parts of the world and that they had given rise to numerous accidents some of them fatal. The Commission recommended that governments take appropriate measures to control these substances on a national scale in order to prevent their abuse.

INTERNATIONAL ACTION FOR THE ABOLITION OF HEROIN

"Diacetylmorphine or heroin the wonder drug of 1893 has been recognised for several decades as the most dangerous of the opiates—because it so easily induces addiction and because the treatment of that addiction can be so difficult and even perilous." International efforts to abolish the use of heroin were initiated in the days of the League of Nations and have been continued by the United Nations and WHO. The steps taken and the results achieved are reviewed by the former Chief of the Addiction Producing Drugs Section of the Organization in a paper published in the *Lancet*¹ from which the present article is drawn.

International recommendations

In 1923 the Opium Advisory Committee of the League of Nations initiated action directed towards the suppression of heroin. Eight years later the conference for the preparation of the Convention for the Limitation of the Manufacture of Narcotic Drugs tried

but did not succeed in reaching unanimity concerning abolition of the production sale and medical administration of heroin. The experts consulted at that time expressed the opinion that heroin was particularly likely to produce addiction and that despite the fact that it was at least equal to morphine in the relief of pain and more effective in the relief of cough it could be entirely dispensed with. The 1931 conference did include in the Convention certain special restrictions on the export of heroin and it recommended that governments should examine the possibility of abolishing or restricting its use and should communicate the results of such examination to the Secretary General of the League of Nations.

Information on the manufacture, import, export and consumption of heroin has been studied from year to year by the Permanent Central Opium Board and the Drug Supervisory Body. In 1949² and 1950³ the WHO Expert Committee on Drugs Liable

¹ W J P O (1946) *Lancet* 270 563

² Off R Wld Hlth Org 1949 19 31

³ Wld Hlth Org 1st An R p Ser 1950 21 5

addicts were first induced to take the drug as a result of solicitation by illegal distributors. For example, an investigation in March 1955 of 116 amphetamine addicts admitted to psychiatric hospitals because of their mental impairment showed that this was high in the list of motives which led to addiction.

Motive	Number of cases
Night amusements such as mah jongg	43
Solicitation	31
Curiosity	24
Deceived	8
Improving working abilities	8
Desperation	2
Studying	1
Slimming	1

Those who became addicted to the drug often displayed such psychological traits as emotional instability or lack of confidence.

Other factors which stimulated abuse of amphetamine in Japan were the ready availability of the large military stock of the drug immediately after the surrender of the country, the spiritual collapse of the people, and the indifference of family and community to education of the young during the post war period.

Addicts administer amphetamine to themselves chiefly by the intravenous or subcutaneous route. The frequency of injection and the dosage vary from 1-5 ampoules (one ampoule contains 3 mg of the drug) to 200 ampoules per day. Some addicts in an effort to regain the sleep/wakefulness balance which has been impaired by the abuse of amphetamine are at the same time users of barbiturates, antihistamine drugs, opiates, or other hypnotic or narcotic drugs.

Among the symptoms of chronic amphetamine intoxication are:

Physical: anorexia, loss of weight, insomnia, thirst, palpitation, and marked impairment of the autonomic nervous system.

Mental: auditory hallucination, delusion

of reference talkativeness and hyperkinesia.

One investigator found that 90% of 110 amphetamine addicts admitted to hospital or to the observation ward suffered some type of mental impairment. The symptoms closely resemble those of schizophrenia. Yet, within 30 days of abstinence from amphetamine the symptoms disappeared in almost all cases, although in some, more than 50 days were needed.

Addicts driven by hallucinations and delusions have committed crimes of cruelty. For example, of 60 murder cases in Japan during May and June 1954, 31 convicted murderers had some connexion with amphetamine misuse. There have also been cases of crimes committed by addicts just for the purpose of getting the drug.

Physical dependence on the drug is not very pronounced and prompt prohibition of the taking of the drug is therefore the first step in therapy. In fact, it is considered illegal to administer amphetamine to the addict for therapeutic purposes.

The Japanese Government has taken vigorous steps in an attempt to cope with this drug addiction problem. In July 1949 the use of amphetamine was restricted to cases under doctor's prescription. In June 1951 a law was enacted which prohibited the importation of amphetamine into Japan and severely restricted the possession, manufacture, sale, and purchase of the drug. This law was revised and made even more strict in June 1954 and was again revised in 1955 in order to bring under control substances which can be converted into amphetamine or used to synthesize it. Action has been taken to expand facilities for the medical care and rehabilitation of amphetamine addicts and a nationwide educational effort has been initiated to gain public co-operation in the movement to eliminate amphetamine abuse, with special emphasis on educating youth and those who live in areas in which exposure to addiction is especially great.

strong enough and can have undesirable side-effects hydrocodone acetyldihydrocodeinone dihydrocodeine methadone pholcodine which has to be classed with codeine and dextromethorphan. The last drug which is much used in the USA is said to have no side-effects to maintain its efficiency over long periods and not to induce addiction.

Analgesics which may replace heroin include hydromorphone pethidine methadone phenadoxone and levorphanol. Attention should be given to levorphanol in particular. In chemical structure it is closely related to morphine but its analgesic effect lasts longer than that of morphine and consequently much longer than that of heroin which makes it extremely useful in the alleviation of chronic pain. In addition its side effects are less pronounced than those of morphine and it is effective and well tolerated when given by mouth.

Role of WHO in heroin suppression

It must be emphasized that WHO is not responsible for controlling illicit traffic in drugs. It is a medical organization and its interest in encouraging the suppression of heroin is in the control of all drugs liable to produce addiction "is simply to try to prevent the creation of addicts in medical practice".

In answer to criticisms of the Organization's action with regard to heroin the former Chief of the Addiction Producing Drugs Section states

Reference has been made to "political pressure" from the World Health Organization for the banning of heroin. As a retired medical officer of WHO I can say that no such pressure was ever in question. A resolution of the World Health Assembly which is composed of delegates of the Member States the overwhelming majority of whom are physicians or (if not) advised by physicians cannot properly be characterized as "political pressure".

Toxicity of Pentachlorophenol

The possible toxicity of the pesticides which are so widely used throughout the world today is of considerable public health importance. A comprehensive study of this problem was made by a WHO consultant J. M. Barnes and the results were published in 1953 under the title *Toxicity of certain pesticides to man* (World Health Organization Monograph Series No. 16).

Since the publication of this study an increasing amount of evidence has accumulated to indicate that pentachlorophenol (discussed on page 67 of the monograph) is much more toxic than had been anticipated. Reports have been received of fatalities among men handling pentachlorophenol as a timber dressing (see for example Truhaut, R., Lepée P. & Boussermont E. (1957) *Arch. Mal. prof.* 13: 567). In all cases the environmental temperature has been high. The features of poisoning are profuse sweating and thirst with rapid collapse and death in some cases. The similarity to poisoning by DNC (4,6-dinitro-o-cresol) can be explained on the basis of the similar biochemical action of the two compounds.

to Produce Addiction expressed alarm because production of the drug was still on the increase. Subsequently, as a result of the work of this committee and on the basis of information collected by WHO, the Sixth World Health Assembly recommended (1) that campaigns should be undertaken to convince doctors and governments that heroin is not irreplaceable and (2) that Member States which had not already done so should cease to produce or import the drug.¹ On 12 July 1954 the United Nations Economic and Social Council urged all governments to prohibit the manufacture, import and export of heroin.

Results achieved

In 1949 only 25 countries and 27 non self governing territories had given up the use of heroin in medical practice. In the most recent report of the WHO Expert Committee on Drugs Liable to Produce Addiction the present situation was summarized as follows:

It was reported to the Committee that of the 20 States which have supplied estimates for diacetyl morphine for 1956 only 4 [*] are not prepared to suppress the use of the drug; several of the others have announced that they will discontinue its use when present stocks are exhausted. It was emphasized that in general the estimates are significantly smaller than in former years and that over all licit production has shrunk from 839 kg in 1948 to 132 kg in 1954. The Committee concluded from this information that more and more physicians throughout the world are finding it possible to substitute less dangerous drugs for diacetylmorphine in accordance with the Committee's repeatedly expressed view on the replaceability of this dangerous addicting agent.

The small number of countries still persisting in the use of diacetylmorphine, the reduction in estimates for the next year and the marked decrease in produc-

tion of the drug reflect very gratifying progress in the campaign against diacetylmorphine.¹

The following examples of abolition of heroin are given in the paper.

The import, export and production of heroin have been forbidden in the USA since 1924. Although the Government maintains a small stock in case a doctor should want to administer this drug to a patient there have been only two requests for its use during all the succeeding years.

In Germany the "heroin fatherland", the drug has not been used for a considerable number of years and has practically disappeared from illegal as well as legal traffic. For the time being the drug is suppressed by administrative means awaiting prohibition by parliamentary Act. The German Pharmacological Society and the Association of Chambers of Physicians have been consulted and have raised no objection.

Switzerland has experienced a change of view with regard to the use of heroin. At the 1931 conference the Swiss delegation considered heroin indispensable for the treatment of certain diseases, but 20 years later Switzerland promulgated a federal narcotic law in which the importation and manufacture of heroin and trade in the drug were prohibited. This act may be regarded as a good example of international co-operation since there was no addiction to heroin in Switzerland important enough to have required suppressive measures and since the decision may have been commercially disadvantageous to the country's pharmaceutical firms.

Alternative drugs

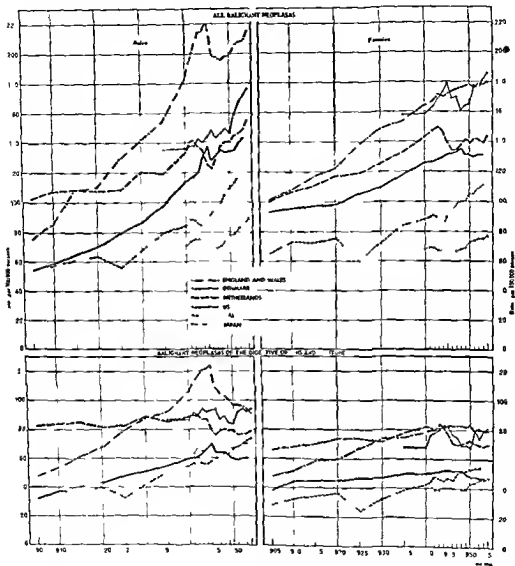
Knowledge of drugs which can replace heroin does not seem to be sufficiently widespread.

Among the less dangerous antitussives are codeine and dionine which are not always

Off Rec Wld Hlth Org 1953 48 22

Not counting the United Kingdom of Great Britain and Northern Ireland, where the situation has changed for the time being. In the meantime Italy has, by decree of March 1956 prohibited the manufacture, import and export of heroin.

FIG 1 MORTALITY FROM MALIGNANT NEOPLASMS IN CERTAIN COUNTRIES BY SEX 1905-54
(Annual Rates)



malignant neoplasms of the pancreas which were formerly included in the residual group "Cancer and other malignant neoplasms of other organs or of unspecified organs"

1938 Exclusion of cancer of the anus hitherto included in malignant neoplasms of the rectum

and henceforward included in the group of malignant neoplasms of the skin Inclusion of abdominal cancer which formerly appeared in the residual

This exclusion is essentially theoretical since in practice it is impossible to separate data relating to the anus from those concerning the rectum.

Epidemiological and Statistical Information

CANCER OF THE DIGESTIVE ORGANS AND PERITONEUM

A recent number of the *Epidemiological and Vital Statistics Report*¹ contains statistics on deaths from malignant neoplasms of the digestive organs and peritoneum. This is the fourth in a series of studies on malignant neoplasms.²

The present report comprises tables on the following

(1) mortality from all malignant neoplasms and from malignant neoplasms of the digestive organs and peritoneum according to sex including the retrospective data available

(2) deaths from malignant neoplasms of the digestive organs and peritoneum per 100 deaths from all malignant neoplasms (all sites), by sex

(3) deaths from malignant neoplasms of the digestive organs and peritoneum according to sex and age,

(4) mortality from malignant neoplasms of the digestive organs and peritoneum in 1951-53 (yearly average) according to sex and age, and

(5) numerical importance of the various sites of the malignant neoplasms of the digestive organs and peritoneum in selected countries at certain ages according to the Detailed List of the International Classification of 1948 (6th revision) and giving the actual numbers of deaths and percentage distribution

In annexes are tables showing the periods covered by the various international lists of causes of deaths since the beginning of the century in certain countries, the differences in figures and in per cent in deaths from malignant neoplasms of the digestive organs and peritoneum (both sexes) classified according to the International List of 1938 and to the international list in use at the time for certain years and certain countries and proportional figures and rates per 100,000 population at the beginning of the century and at the present time, for persons aged 65 years and over by sex, for deaths (a) from senility and unknown cause (b) malignant neoplasms, all sites and (c) malignant neoplasms of the digestive organs and peritoneum

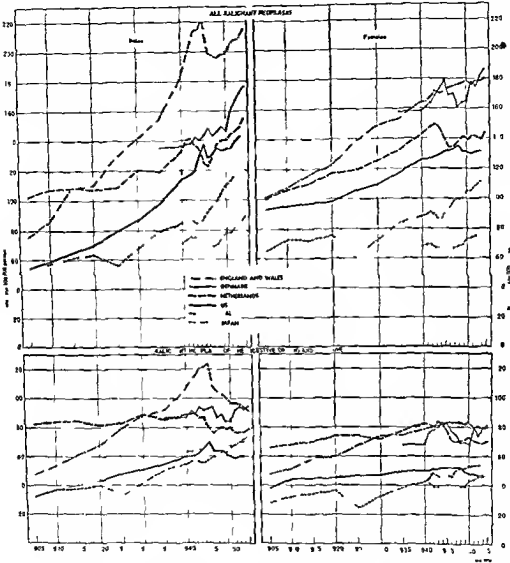
In considering data on mortality from malignant neoplasms it is necessary to bear in mind the effect on these data of the successive revisions of the international lists of causes of death. During the period covered by the present study the international lists were subject to six revisions (in 1900, 1909, 1920, 1929, 1938 and 1948). The classification of deaths from cancer underwent only minor changes in these six revisions although the lists became more detailed. The figures were not greatly affected by these changes since the classification with regard to the principal sites stomach and intestine which are most significant in the mortality statistics was not altered. The main changes were those introduced by the 1929 and 1938 revisions which may be summarized thus

1929 Exclusion of malignant neoplasms of the pharynx (previously included in the digestive system under "Stomach and liver") which were transferred to the group of malignant neoplasms of the buccal cavity entitled "Cancer and other malignant neoplasms of buccal cavity and pharynx" Inclusion of

Epidemiol. vital Statist. Rep. 1: 56-9, 1954-55

The other aspects of mortality from malignant neoplasms already dealt with in the *Epidemiological and Vital Statistics Report* are multiple myeloma (1954: 213), Hodgkin's disease (leukemia, leukaemia) (1953: 81) and malignant neoplasms of the respiratory system (1955: 11). See also *Parvus, W. Epidemiol. vital Statist. Rep.* 1952: 51 (Evolution of Mortality in Europe during the 20th Century. Cancer Mortality.) *Bull. Wld. Hlth. Org.* 1953: 12: 687 (Increased Mortality from Cancer of the Respiratory System.)

FIG 1 MORTALITY FROM MALIGNANT NEOPLASMS IN CERTAIN COUNTRIES BY SEX 1905-54
(Annual Rates)



malignant neoplasms of the pancreas which were formerly included in the residual group. Cancer and other malignant neoplasms of other organs or of unspecified organs."

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and henceforward included in the group of malignant neoplasms of the skin. Inclusion of abdominal cancer which formerly appeared in the residual

The decision is essentially theoretical since in practice it is impossible to separate data relating to the anus from those concerning the rectum.

group "Cancer and other malignant neoplasms of other organs or of unspecified organs." This item "Abdominal cancer" was deleted in the 1948 revision since it was only a means of classifying types of neoplasm which were poorly defined owing to inexact diagnosis. The mortality figures entered under

"Abdominal cancer" are in fact decreasing as the diagnosis of cause of death improves particularly the diagnosis of malignant neoplasms.

TABLE I DEATHS FROM ALL MALIGNANT NEOPLASMS PER 100 DEATHS FROM ALL CAUSES AT DIFFERENT PERIODS

	1901	1920	1947	1953
Australia (excluding full blood aboriginals)	52	80	129	136
Canada	—	71 ^a	133	145
Chile	10 ^b	13	48	66
Denmark	—	105	162	196
England and Wales	44	84	151	169
Finland	—	45 ^c	101	149
France	35 ^d	47	119	134
Germany	37 ^e	58	149 ^f	161 ^f
Ireland ^g	34	57	90	125
Italy	24	37	85	115
Japan	24	29	47	89
Netherlands	54	94	164	189
New Zealand (excluding Maoris)	68	85	146	155
Norway	64	86	153	176
Scotland	56	85	137	167
Spain	15	25	59	86
Sweden	76 ^h	86	130	156
Switzerland	71	93	157	179
Union of South Africa (European population)	45	53	125	145
United States	41 ⁱ	64 ^j	131	146
Uruguay	40	52	148	175

^a 1921—Province of Quebec not included

^b 1903

^c 1927

^d 1906

^e 1906

^f Federal Republic of Germany

^g Actual territory since the beginning of the century

^h 1913

ⁱ 1912

^j 26 1/2 % of territory

^k 80 9/10 % of territory

The tables in the present study show an increase in deaths from malignant neoplasms of the digestive organs and peritoneum since the beginning of the century. Generally speaking however, this increase was clearly less marked than that noted for malignant neoplasms as a whole (see Fig 1). The general increase may be partly attributable to the aging of the population: most forms of cancer are more common among people in the older age groups, with the exception of leukaemia which especially afflicts children and adolescents. Improved diagnostic methods during the period covered by the statistics are another possible factor. The proportion of deaths classified as due to senility or

TABLE II DEATHS FROM MALIGNANT NEOPLASMS OF DIGESTIVE ORGANS AND PERITONEUM PER 100 DEATHS FROM ALL MALIGNANT NEOPLASMS IN 1953

Australia (excluding full blood aboriginals)	45.3
Canada	46.7
Chile	69.6
Denmark	~ 4
England and Wales	44.6
Finland	50
France	50.1
Germany Federal Republic of	54.5
Ireland	51.7
Italy	54.6
Japan	73.3
Netherlands	50.5
New Zealand (excluding Maoris)	46.3
Norway	51.0
Scotland	47.5
Spain	41.9
Sweden	7
Switzerland	50.6
Union of South Africa (European population)	47.7
United States of America	39.0
Uruguay	54.6

TABLE III MORTALITY FROM ALL MALIGNANT NEOPLASMS (ALL SITES) AND FROM MALIGNANT NEOPLASMS OF THE DIGESTIVE ORGANS AND PERITONEUM ACCORDING TO SEX IN 1953

Actual numbers and rates per 100,000 persons of each sex
 T = both sexes M = males F = females

Country	Number of deaths per sex						Mortality rates per 100,000 persons of each sex		
	T	M	F	T	M	F	All malignant neoplasms	Malignant neoplasms of the digestive organs and peritoneum	
Australia (excludes full blood aborigines)	10,972	5,643	5,329	4,951	2,601	2,350	1.6	1.1	60
Austria	14,091	7,470	6,621	7,044	3,700	3,344	3.0	2.3	101
Canada	10,151	5,576	4,575	6,471	3,652	2,819	1.8	1.1	60
Ceylon	1,791	647	644	644	16.4	12.3	15	17	3
Chile	5,279	2,674	2,605	3,303	1,711	1,592	7.9	6.7	43
Denmark	7,770	3,732	4,038	3,377	1,703	1,674	1.2	1.1	79
Finland	5,949	3,074	2,875	3,346	1,647	1,699	1.5	1.3	79
France	74,212	35,769	38,443	37,665	19,779	17,886	17.6	15.9	6
Germany Federal Republic	60,931	41,768	19,163	47,417	24,139	23,278	18.1	17.5	105
West Germany	5,210	2,373	2,837	2,446	1,176	1,270	1.8	1.5	102
Israel	4,333	2,363	1,970	2,239	1,288	951	1.6	1.3	66
Italy	1,298	640	658	571	278	293	1.1	0.9	58
Japan	4,340	2,703	1,637	9,676	10,168	12,400	11.9	11.1	70
Netherlands	63,625	30,093	33,532	50,031	30,373	19,658	6.5	7.5	46
New Zealand (excludes Māori)	15,176	7,377	7,799	7,843	4,071	3,772	14.9	13.9	69
Norway	2,642	1,409	1,233	1,273	684	589	14.6	12.9	71
Spain	4,991	2,447	2,544	2,477	1,474	1,003	14.7	14.0	85
Sweden	23,737	11,763	11,974	11,607	5,611	5,996	6.7	7.9	39
Switzerland	10,850	5,704	5,146	5,731	3,074	2,657	14.6	14.6	74
Sweden	8,914	4,630	4,284	4,157	2,373	1,784	1.8	1.8	86
Switzerland	5,704	1,676	1,708	1,409	830	569	1.9	1.1	108
Union of South Africa (European population)	25,078	44,331	40,097	37,945	19,805	18,140	10.9	11.6	49
United Kingdom	9,640	5,141	4,499	4,729	2,337	2,392	10.1	17.8	73
Scotland	2,175	1,040	1,135	1,020	27	33	1.5	1.1	84
Northern Ireland	216,376	111,376	105,000	84,444	46,111	37,933	14.3	13.1	74
United States of America	5,351	1,640	1,511	1,800	1,016	814	13.7	14.3	41
Uruguay (1951)									75

Excluding neoplasms of lymphatic and haemopoietic tissues

Excluding Hodgkin's disease, leukaemia and all subtypes

Excluding stomach, intestine and rectum only

Excluding lymphatic or approximate figures

Excluding deaths among armed forces

poorly defined or unknown cause has greatly decreased in most countries

The relative importance of malignant neoplasms as cause of death at different periods is shown in Table I

According to the detailed list of the International Lists of 1948, malignant neoplasms of the digestive organs and peritoneum are classified under the following headings (1) oesophagus (2) stomach, (3) small intestine including duodenum (4) large intestine except rectum (5) rectum, (6) biliary passages and liver (stated to be primary site) (7) liver (secondary and unspecified) (8) pancreas, (9) peritoneum and (10) unspecified digestive organs

Certain noteworthy conclusions may be drawn from the data in the present study

1 In 1953 mortality from malignant neoplasms of the digestive organs and peritoneum accounted for 39% (USA) to 73.3% (Japan) of all deaths from malignant neoplasms (see Table II)

2 In view of the fact that malignant neoplasms rank second (cardiac diseases are first) as cause of death in most countries cancer of the digestive organs and peritoneum alone may be said to occupy an important place among the principal causes of death since mortality from malignant neoplasms of

these organs represents about half of all cancer deaths

3 Although mortality from cancer of the digestive organs and peritoneum continues to increase in certain countries in others it remains stationary or is even slightly decreasing Fig 1 shows the different trends in Japan Denmark and Italy on the one hand and the USA England, and the Netherlands on the other

4 There are differences in the mortality according to sex—sometimes significant differences—with variations from one country to another In general mortality from cancer of the digestive organs and peritoneum is higher among men than among women (see Table III and Fig 1)

5 The mortality gradually increases with age it is highest among persons over 60 years of age

6 If one considers the relative importance of the specific sites in deaths from malignant neoplasms of the digestive organs and peritoneum one notices that among men cancer of the stomach accounts for the most deaths followed in general by cancer of the large intestine the rectum and the liver Among women, cancer of the stomach or of the large intestine comes first followed by cancer of the liver and of the rectum

WHOOPIING COUGH

Morbidity and Mortality Statistics

In comparison with other causes of death the infectious diseases have experienced a gradual decrease in importance at least in the countries which are the best equipped from the health point of view Nevertheless considering the world as a whole these diseases continue to take a heavy toll in human life

Among children of pre school age whooping cough—too often considered as of little importance by many physicians as well as by the general public—is still one of the

most deadly of the communicable diseases For example in the United States from 1940 to 1948 whooping cough caused three times as many deaths among children one year old as did measles meningitis diphtheria poliomyelitis scarlet fever chickenpox rubella and mumps together¹

Although whooping cough is a notifiable disease in many countries² the notifications

Gordon J E & Hood R I (1951) *Am J Med Sci* 222, 333-61

See World Health Organization (1956) *Annual Epidemiol. and Vital Statistics* 1955 Geneva, pp 3, 3, 39

give only a very incomplete and inaccurate picture of the actual morbidity. It has sometimes been observed that the notifications have amounted to only 3/ of the actual number of cases⁵ but generally the proportion is higher. The under-estimation of deaths from whooping cough is less marked, however a considerable proportion of mortality from this cause is commonly attributed to other diseases, particularly pneumonia. Errors to the extent of 36 7/ have been noted⁶.

In October 1952 a conference of heads of laboratories which prepare vaccines against diphtheria and whooping cough was held at Dubrovnik Yugoslavia. This was followed in March 1954 by an international conference at Frankfurt-on-Main at which recent progress in the prevention of the most common communicable diseases was discussed⁵. In a report on the earlier conference it is noted that trials of whooping cough vaccine in Great Britain showed that the attack rates among vaccinated children exposed to infection at home ranged from about 7 3/ with

Emerson, H. (1937) *Am J publ Hlth* 27 S ppl to N 6
Gordon & Hood, p 1 p 335

See Bull Wld Hlth Org 1955 13 563-490

TABLE 1 SEX AND AGE DISTRIBUTION OF NOTIFIED CASES OF WHOOPING COUGH IN SELECTED COUNTRIES IN 1953

Country		Number of cases (all ages)	Percentage of cases for the different age groups							
			1	1-4	5-9	10-14	15-19	20-24	25 & +	?
Egypt	T	16.9	15.4	57.2	24.2	2.9	0.2		0.1	—
	M	930	15.8	56.3	22.8	2.2	0.1		0.1	—
	F	979	15.1	56.1	25.6	2.8	0.3		0.1	—
Canada	T	2,364	11.5	32.8	33.9		1		2.0	47
	M	113	11.5	40.3	40.6		1.5		1.4	49
	F	1,211	11.4	39.4	39.2		2.6		2	45
Hong Kong	T	131	15.3	38.2	4.84	0.8		—		—
	M	65	13.8	44.6	40.04	1.5		—		—
	F	66	16	31.8	51.54	—		—		—
Denmark	T	4254	9.6	1	5.8			1.9		—
	M	4,637	11.9	2.0	31.0	3.4	0.6	7.3	0.6	—
	F	2,512	11.0	1.4	32.8	3.3	0.3	0.2	0.8	—
Ireland	T	1,005	16.1	44.0	25.8	7.5	3.9		2	—
	M	731	14.0	45.3	29.3	7.6	4.3		2.5	—
	F	804	18.2	42.8	25.4	7.3	3.5		2.9	—
Italy	T	38,126	37.9/	7.7%	30.5	3.0	0.3		1.0	0.5
	M	18,394	38.6/	26.3%	30.7	9	0.3		0.7	0.5
	F	19,772	37.2/	27.1%	30.4	3.0	0.3		1.3	0.5
Lithuania	T	304	9.2	74.3	15.41		—			—
	M	1,260	21.7	47.1	16.6	3	0.3		0.6	0.5
	F	734	21.7	46.4	26.6	3.4	0.4		0.6	0.9
Portugal	T	776	21.8	47.7	26.6	3.0	0.3		0.6	0.7
	M									
	F									
United Kingdom England & Wales	T	57,835	8.9	51.8	36.3	1.5	0.3		0.9	0.3
	M	75,478	9.2	2	6.0	1.5	0.2		0.6	0.3
	F	82,357	8.6	51.3	36.5	1.6	0.5		1.3	0.3
Scotland	T	17,093	10	49.5	39.1		0.3		0.6	—
	M	8,051	10.6	50.2	37		0.2		0.3	—
	F	9,040	10.5	49.9	39.4		0.5		0.8	—

T = both sexes

M = males

F = females

— = all
Newfoundland New Brunswick Manitoba Saskatchewan Alberta,
British Columbia (32.7% of the total population)
Excluded 109 cases of unknown age

1-3 years
4-9 years
1952
Under 3 years
3-4 years
4 1950-52
1-5 years
6-14 years

one vaccine to 30.4% with another, whereas the attack rates in corresponding unvaccinated groups were 79.5% and 90.5%.⁶ It would seem that satisfactory means of protection may soon be perfected but, if prophylaxis is to be rationally applied it is essential to have the most accurate knowledge possible of the prevalence and distribution of whooping cough.

With the reservations made above concerning the value of notifications of cases and deaths the statistical tables published in a recent WHO *Epidemiological and Vital Statistics Report*⁷ on whooping cough morbidity and mortality since the beginning of the century provide some useful information and supplement data on the same subject published earlier.^{8,9} A particular feature of these tables is that they give for the first time and with respect to a number of countries official figures for cases of a communicable disease classified by sex and by age group.

The data on morbidity contained in the Report show that whooping cough is present almost everywhere. However, the rapid rise in the figures for certain countries and territories would seem to indicate that there has been a constant improvement in notification rather than a real increase in the prevalence of the disease.

Details are given for some recent years, of the distribution by sex and by age group of the cases notified in certain countries. Table I shows the percentage distribution of cases observed in 1953.

It will be noted that whooping cough affects a greater proportion of young children in southern countries (Egypt, Portugal, Italy) than in northern ones. A similar phenomenon has been observed in the United States.¹⁰ In fact this may be said to be true of most communicable diseases today: there is a tendency to recognize that most of

the diseases (diphtheria, poliomyelitis, etc.) that seem to be comparatively rare in low latitudes are actually present in mild or non-apparent forms in infants and young children.

Table II and Fig. 1 illustrate the marked and continuous drop in deaths from whooping cough since the beginning of the century. Logan¹¹ has demonstrated that in England and Wales this decrease has been continuing without interruption for nearly a century. The decrease, although considerable in the light of registered rates for 1901-1905, is less than that observed with respect to scarlet fever, diphtheria and measles. Analogous observations have been made in the United States.¹

No completely satisfactory explanation of this regression—or of that noted in connexion with most of the other communicable diseases—has yet been given. It cannot be attributed to vaccination, the use of which is not very widespread. Neither can modern treatment be given the credit since it has been introduced comparatively recently. It may be a question of a cyclic trend by century, in which case the position may in time be reversed.

Examination of the sex and age group distribution of deaths from whooping cough reveals some very interesting facts. With a few rare exceptions mortality is more frequent among females. According to reliable observations the same holds true with regard to morbidity. This makes whooping cough almost unique among the infectious diseases. On the other hand, in both sexes by far the greater proportion of deaths is among infants less than one year old, and particularly among those under six months of age. This has obvious implications for the selection of the age at which vaccination against whooping cough should be administered.

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See WHO Hlth Org. techn. Rep. Ser. 1953, 61, 45.
Epidem. vital. Statist. Rep. 1956, 9, 361-403.
 Pascua M. (1951) *Epidem. vital. Statist. Rep.* 4, 36-137.
Epidem. vital. Statist. Rep. 1954, 5, 3-331.
 Gordon & Hood op. cit., p. 333.

LOGAN W. P. O. (1950) *Med. Off.* 84, 17-19.
 COHN A. L. & LINGS C. (1940) *The burden of disease in the United States*. New York.

TABLE II MORTALITY FROM WHOOPING COUGH IN SELECTED COUNTRIES IN 1901-05 OR 1921-25
AND IN 1951-54

Country or territory	1901-05	1951-54	Quotient 1951-54 1901-05	Country or territory	1921-25	1951-54	Quotient 1951-54 1921-25
	Rate per 100,000 inhabitants				Rate per 100,000 inhabitants		
America				Africa			
Chile	50 ^a	11.7 ^b	0.21	Egypt	22 ^b	0.6	0.09
United States				Union of South Africa	128 ^a	1.0 ^b	0.08
All races	100 ^a	0.6 ^b	0.04	America			
Whites	91.4	0.5	0.02	Canada ^a	97	1.0	0.10
Non-whites	243.4	1.7 ^b	0.07	Colombia	41.7 ^a	22.7	0.69
Uruguay	40	5	1.30	Costa Rica	47.6	14.1	0.30
Asia				El Salvador	54.3	70.5 ^b	0.33
Japan	46	3.0 ^b	0.65	Ghana	133.4 ^a	140.2	1.05
Europe				Mexico	91.4 ^a	32.8 ^b	0.36
Belgium	38.6 ^a	0.7	0.02	Peru	96 ^a	2.4 ^b	0.25
France	8.7	1.0	0.12	Venezuela	129	63 ^b	0.43
Germany	34.4	1.2	0.04	Europe			
Ireland	21.7	2.4	0.11	Austria	96 ^a	1.4	0.15
Italy	19.7	0.5 ^a	0.05	Denmark	103	0.8	0.08
Netherlands	21.4	0.9	0.04	Finland	17.9 ^a	1.0	0.20
Norway	16.2	0.5	0.03	Luxembourg	12.3 ^a	0.9	0.07
Portugal	16.1 ^a	3.4	0.21				
Spain	22.8	1.9 ^b	0.08				
Sweden	17.5	0.2 ^b	0.01				
Switzerland	19.9	0.6	0.03				
United Kingdom							
England and Wales	30.1	0.6	0.02				
North Ireland	30.1	1.1	0.04				
Scotland	49.0	0.9	0.07				
Oceania							
Australia	11.4 ^a	0.3 ^b	0.03				
New Zealand	8.2	0.4 ^b	0.05				

— a 1903-05
 * 1951-53
 * Death-registration States
 * 1911-15
 * 1945-50
 * 1906-10

* Federal Republic
 * 1902-05
 * Excluded population of the
 * Excluded population of
 * 1928-30
 * European population
 * 1922-25

* Excluding Yukon and North West Territories
 * 1926-30
 * 1927-30
 * 1931-35
 * Excluding Indian
 * 1931-35
 * 1923-25

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Examination of the sex and age group distribution of deaths from whooping cough reveals some very interesting facts. With a few rare exceptions mortality is more frequent among females. According to reliable observations, the same holds true with regard to morbidity. This makes whooping cough almost unique among the infectious diseases. On the other hand in both sexes by far the greater proportion of deaths is among infants less than one year old and particularly among those under six months of age. This has obvious implications for the selection of the age at which vaccination against whooping cough should be administered.

* * *

See *Wld Hlth Org. techn. Rep. Ser.*, 1953, 61, 25.

Epidem. vital. Statist. Rep. 1956, 3, 361-403.

Pascua, M. (1951) *Epidem. vital. Statist. Rep.* 4, 36-137.

Epidem. vital. Statist. Rep. 1955, 5, 323-31.

Gordon & Hood *op. cit.* p. 333.

¹ Logan, W. P. O. (1950) *Med. Off.* 84, 217-19.

Cohn, A. E. & Lunge, C. (1901) *The burden of diseases in the United States*. New York.

To sum up among the communicable diseases of childhood whooping cough has certain special characteristics the most important of which are high fatality among young infants and a predilection for females. Although mortality from this disease is gradually decreasing the decline is slower than with most other communicable diseases. Moreover the drop in mortality began before the discovery of effective means of protection it has not yet been explained and there is no *a priori* indication that it will

continue indefinitely. Incidence of the disease on the other hand does not seem so far to have diminished to any appreciable extent.

Whooping cough is more dangerous during the first year of life than all the other communicable diseases of childhood put together and it therefore deserves the attention of epidemiologists and public health authorities. Fortunately it is probable that the means of protection now available will soon be used on a sufficiently wide scale to make control of the disease possible.

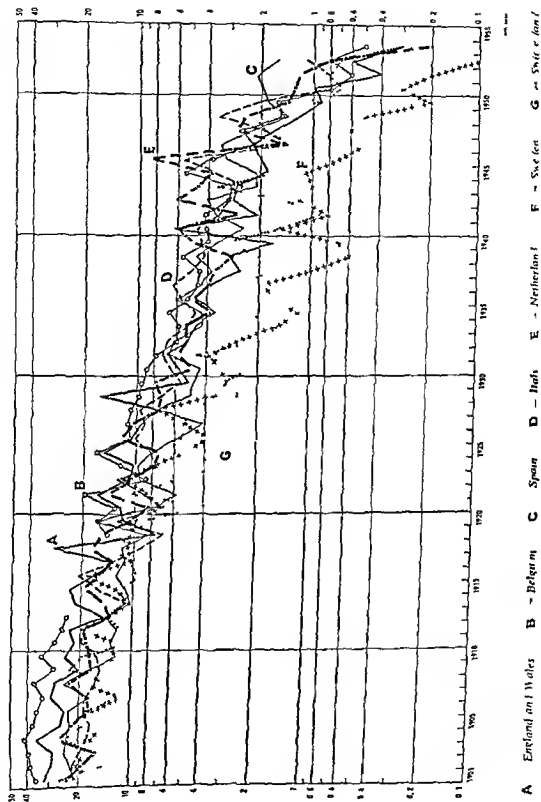
Seventh Revision of the International Lists of Diseases and Causes of Death

The Ninth World Health Assembly decided that the 1955 International Classification of Diseases should soon be published by WHO in the form of a new edition of the *Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death*. The 1955 revision embodies the recommendations made by the International Conference for the Seventh Revision of the International Lists of Diseases and Causes of Death, held in February 1955. It is expected that the new edition of the *Manual* will be available in 1957.

German Translation of Reports on Alcohol and Alcoholism

Under the title *Das Problem des Alkoholismus* a German translation of WHO expert committee reports on alcohol and alcoholism has been published in monograph form by Georg Thieme, Stuttgart. The translation is by Dr. Med. Hans Meyer of the *Institut für Alkoholforschung*, Prof. Gönnerhaus, Berlin-Dahlem. This publication which is the third in a series called *Schriftenreihe aus dem Gebiete des Öffentlichen Gesundheitswesens*, contains the first and second reports of the Alcoholism Subcommittee of the Expert Committee on Mental Health, the first report of the Expert Committee on Alcohol and Alcoholism, and the first report of an expert committee all of which have appeared in the WHO *Technical Reports Series*.

FIG 1 MORTALITY FROM WHOOPING COUGH IN CERTAIN COUNTRIES SINCE 1901
(Rates per 100 000 Inhabitants)



therefore develop "interpersonal skills" which will help her to work with patients in therapeutic experiences

Attention is then turned to the education of psychiatric nursing personnel. The learning process in psychiatric nursing is dealt with at some length and the emotional problems in training for this work are noted. Teaching methods are most effective if they are group-centred, actual hospital experience is required as part of the training. With regard to what must be taught the report states that the basic curriculum should include three broad fields of study:

The first comprises systematic study of normal personality development in both its psychological aspects and its underlying physiology; some treatment of human motives and the mechanisms by which the developing personality organizes these motives into conformity with the demands of physical and social reality; and some discussion of the influence

of social institutions and cultural roles on the course of development. Secondly it is necessary to provide some understanding of the nature of mental illness in its varied forms, its relations with cultural norms of behaviour, its connections with various physical and organic disorders, and the modes of psychiatric treatment that have been evolved to cope with it. Finally a whole range of nursing skills and techniques has to be learned. To a certain degree this will involve teaching the symptoms and course of certain common physical disorders and methods of physical care and treatment that are also a part of general nursing. It also means imparting distinctive psychiatric skills such as interpersonal techniques and group dynamics, methods of hospital communication and recording, and skills necessary in community nursing.

The curriculum for supervisory nurses and the preparation of specialists in psychiatric nursing are also outlined.

In its final section the report suggests lines for further studies in psychiatric nursing and the part which the nurse can play in research.

FOOD ADDITIVES

In September 1955 FAO and WHO convened a joint conference on food additives, a public health problem of increasing urgency to which the Sixth World Health Assembly had called attention. The report on this conference has now been published in the WHO *Technical Report Series* and the FAO *Nutrition Meetings Report Series*.¹

The report outlines the advantages of international action with regard to food additives, pointing out that the potential health hazards from the inadequately controlled use of food additives are world wide; that exchange of information and experience on as wide a basis as possible would be of value; and that the size of the problem makes it

impossible for any single country to undertake the investigations needed. It is noted that the question of food additives has implications for international trade as well as for health. "The greater the measure of agreement on methods of testing, on the interpretation of the results, and ultimately on the actual lists of permitted food additives, the greater the advantage to the free movement of manufactured foods in international trade."

Specific lines of international action are suggested, these being concerned largely with collecting and disseminating information on food additives, including information on the relevant legislation in different countries. Certain food additives are singled out as deserving priority: food colours, preservatives (antimicrobial agents and antioxidants) and emulsifiers, in that order.

WHO/HIA/Org. No. R. p. Ser. 19, 6, 107, 14 p. Price 1/9 \$0.30 or Sw. f. 1.— Published in Engl., French, and Spanish. (Issued also FAO Nutrition M. conf. R. post. free N. 11)

Reports of Expert Groups

PSYCHIATRIC NURSING

The first report of the WHO Expert Committee on Psychiatric Nursing² furnishes much valuable information on all aspects of the care of the mentally ill as well as on the specific role of the psychiatric nurse.

Psychiatric nursing of necessity reflects social and cultural attitudes towards the mentally ill and the stage of development of the psychiatric services. The report traces the steps in the evolution of psychiatric care and the implications for the nursing personnel concerned.

At a given time and in a given community if the practice of psychiatry is one which rests on the assumption of gross irreversible differences between the mentally ill and the people in the society at large segregation of patients occurs with the protection of the community as its principal aim. Treatment consists nearly entirely in restricting the patient and the nurse's role too is a protective and restricting one. Education is mere technical training.

As a more discriminating and hopeful outlook towards the mentally ill develops less emphasis is placed on the mere protection of the community and more on the protection of the patient. Control and limitation of patients continue to be paramount but take on a more kindly attitude. The intrapersonal aspects of mental disease are stressed and psychiatric treatment is focused on describing these intrapersonal reactions and on developing empirical methods for their relief. This situation dictates the attitude and behaviour of the nurse towards her patient—i.e. she must accept the patient, be kind to him, understand him and his pathology. Her training focuses on descriptive knowledge and her attitude towards her patient will be dependent on his category of disease or behaviour. By and large however the nursing care remains custodial.

Another stage emerges with the development of

the view that each illness is related to the patient's real situation and to a specific period in time. This implies that psychiatry begins to include the community in its focus as it moves towards the prevention of mental illness and the rehabilitation of the patient in the community as well as his treatment within the hospital. Thus there develops a general trend towards a more "community like" life in the hospital.

These changes imply a marked shift in the role of the nurse—the addition of an interpersonal concept of patient behaviour to an intrapersonal one—a shift from a custodial role to a therapeutic one. In them the education of the nurse moves from the descriptive didactic type of programme to one which will provide her with more therapeutic skills in nursing her patients.

Within the framework of a detailed discussion of the role of the psychiatric nurse the report goes on to describe all of the community mental health services—mental hospital extra mural activities (out patient clinic day hospital night hostels clubs for discharged patients etc.) care before and after hospitalization the general community public health programme—and the nature of psychiatric nursing therein. Emphasis is laid on the importance of group activities and on the idea of a "therapeutic community" within the mental hospital. The nurse plays an essential part in diagnosis, being called upon to observe and report. In treatment her role becomes especially meaningful since her duties are directly concerned with the effort to provide experiences in living which will enable the patient to establish relationships which are less anxiety provoking and more comfortable than those in his pre hospital life. The nurse's work is considered under three headings technical social and interpersonal and it is stressed that the last is of central importance and that the nurse must

² *Wld Hlth Org Techn Rep Ser* 1956 105 43 pages. Price 1/9 \$0.30 or Sw fr 1.—Published in English, French and Spanish.

Health Legislation

VENEREAL DISEASES

A Study of Existing Legislation

The legal measures taken by health authorities to control venereal diseases have always given rise to discussions in medical and public health literature. The application of these measures creates difficulties for physicians in the course of their practice: difficulties concerning professional secrecy; their application also comes up against the reluctance of patients to report the disease or the epidemiological circumstances under which they contracted it.

Compilations of venereal disease legislation have been published containing the laws and regulations in force in various countries. The reviews and comments on this legislation which regularly appear in works on venereal disease control and in medical periodicals show how important this problem is considered to be. An examination of the principles underlying some venereal disease laws at present in force thus appeared to be of interest both from the point of view of methodology and from that of public health. Such a survey covering the legislation of 44 countries has just been published in the *International Digest of Health Legislation*.¹ Like two earlier surveys of a similar kind dealing respectively with leprosy² and tuberculosis³ it shows as was to be expected that the measures adopted in the countries examined vary considerably. Despite this variation in the measures for which provision is made in venereal disease legislation (notification of cases, tracing of sources of

infection, powers of health authorities, etc.) several general tendencies may be observed.

In certain countries medical practitioners are themselves responsible for taking the initiative in venereal disease control. They are responsible for health measures and in particular for carrying out epidemiological investigations and for giving the necessary instructions to patients to prevent the spread of the disease. Where this is so the health authorities intervene only if medical practitioners are unable to discharge their duties because patients refuse to give information or fail to adopt the prophylactic or therapeutic measures prescribed. In other countries such duties are the responsibility of the public health services which also trace sources of infection, examine groups of the population, provide facilities for premarital health examinations, etc. The public health services often possess great coercive power. While the laws of some countries make very complete provision for control measures, there are others whose laws deal with only one or more aspects, such as the suppression of prostitution or of quackery.

Venereal disease is defined differently in the countries examined. In some countries it covers syphilis, gonorrhoea and soft chancre; in others lymphogranuloma venereum and granuloma inguinale as well.

Venereal diseases like tuberculosis are usually the subject of a special law or of a separate section of a general law dealing with communicable diseases. At the present time however it is generally held that venereal diseases should be dealt with in the same way as other communicable

¹ *Int. Dig. Hlth Leg.* 1956, 7, 155. This survey is available in English and French (price 3 fr. 6, \$0.70). See also ² *Ibid.*, 1954, 5, 1.

³ *Ibid.*, 1952, 3, 417.

The ninth report of the Expert Committee on Biological Standardization¹ records the establishment of international standards for (1) diphtheria toxoid adsorbed (2) antirabies serum (3) oxytetracycline (4) polymyxin B, (5) corticotrophin (second standard) (6) growth hormone and (7) hyaluronidase, and the assigning of international unitages to all of these standards and to standards or reference preparations of diphtheria toxoid plain swine erysipelas serum, anti N, thyro trophin and dextran sulfate

The stocks of the International Standards for Progesterone and Tubocurarine are low but will not be replaced since both can now be adequately characterized by chemical and physical methods. However the Expert Committee on the International Pharmacopoeia will be asked to include these substances in the Collection of Authentic Chemical Substances which WHO has established in Stockholm

Among other substances considered in the report are antivenins blood typing sera influenza sera pertussis vaccine and sera poliomyelitis vaccines and sera and typhoid and yellow fever vaccines

In the final section of the report is a brief discussion of international standards national standards and minimum requirements in which it is emphasized that although many countries would like WHO to provide recommendations about minimum requirements for therapeutic and prophylactic substances such a task does not come within the province of the Expert Committee on Biological Standardization. It is stated that the terms 'biological standards' and 'biological standardization' refer to "the provision and use of material standard preparations of therapeutic and prophylactic substances requiring bio assay and not to the drafting of specifications for these substances. However the Committee will continue to advise on the use of biological standards in comparative assays, and in formation on the methods which should be employed in the preparation and calibration of national standards will be provided to users of the international standards. Attention is called in the report to the fact that many techniques necessary for the proper use of the international standards are already described in WHO publications such as the International Pharmacopoeia the *Bulletin of the World Health Organization* the *Monograph Series* and the *Technical Report Series*

Wld Hlth Org techn Rep Ser 1956 103. 0 pages Price 1/9 \$0.30 or Sw fr 1 — Published in English French and Spanish

"One of the outstanding organizations working throughout the globe is the World Health Organization

"When the history of this era is written when the substantial developments have been separated from the trivial items of our times when the wheat has been separated from the chaff it will be found that the World Health Organization has written one of the finest chapters of this era

For the first time in the history of mankind the human community acting on the basis of its collective conscience and its humanitarian instinct for its fellow human beings has conducted a global assault against mankind's age old scourges "

(Senator Alexander WHEAT of Wisconsin in an address on The World Health Organization and its rising in the Senate of the United States 1 February 1946 Quoted in the *American Journal of Public Health* and the *Nation's Health* 1956 46 795)

agenda a number of important subjects including the proposed programme and budget for 1958

The members of the Board and the designating countries are as follows Professor G. A. Canaperia (*Chairman*) Italy H. E. Dr R. Pharaon (*Vice Chairman*) Saudi Arabia Dr C. K. Lakshmanan (*Vice Chairman*) India Dr E. Suárez (*Rapporteur*) Chile Dr A. C. Regala (*Papporteur*) Philippines Dr L. Baquerizo Amador Ecuador Dr G. D. W. Cameron Canada Sir John Charles United Kingdom Dr Dia E. El Chatti Syria Dr B. M. Clark (alternate to Dr J. J. du Pre Le Roux) South Africa Dr M. Jafar Pakistan Dr Maung Maung Gyi Burma Professor J. Parisot France Professor N. N. Pesonen Finland Dr L. Sini Argentina Dr A. da Silva Travassos Portugal Dr Masayoshi Yamaguchi (alternate to Dr R. Azuma) Japan and Dr J. Zozaya Mexico

Seminar on Diarrhoeal Diseases in Latin America

Diarrhoeal diseases are a leading cause of morbidity and mortality among infants and children in the Latin American countries. As part of a programme of the Regional Office of the Americas directed towards stimulating preventive action, a series of seminars on this health problem is being planned.

The first Latin American seminar on diarrhoeal diseases in childhood will be held in Santiago from 5 to 10 November 1956. This seminar will bring together public health officers, epidemiologists, maternal and child health officers, paediatricians, sanitary engineers, public health nurses, bacteriologists and other professional workers from Argentina, Brazil, Chile, Paraguay, Uruguay and Venezuela. Working groups will discuss the following major themes: extent of the problem, diagnostic, bacteriological and epidemiological considerations, treatment, sanitation and problems and techniques in control programmes. It is expected that reports on these five subjects will be combined into a final summarizing document.

Syria Undertakes Malaria Eradication

Syria is the first country in the Eastern Mediterranean Region to embark upon malaria eradication. The Government has signed an agreement with WHO and UNICEF for assistance in a five year programme which begins immediately.

It is estimated that approximately 1 150 000 persons live in malarious areas in Syria and operations are planned to cover the affected areas simultaneously in order to stop transmission of the disease. The operations will be continued until no transmission has been observed for three consecutive years after which the affected areas will be kept under constant surveillance. Special attention will be given to protecting nomadic tribes. In the southern districts of Damascus and Hauran work will be co-ordinated with UNRWA malaria-control efforts already in progress.

WHO under the Technical Assistance Programme will provide international technical staff, equipment and fellowships for senior Syrian staff to study abroad. UNICEF will contribute supplies and equipment.

Dr M. Postiglione has been appointed WHO team leader and technical adviser. Dr Postiglione has previously served the Organization in Cambodia and Burma. Other members of the WHO team are Mr C. Henrard, entomologist formerly with WHO in Iran, and two sanitarians, Mr M. Gohar and Mr G. Sultan, both of whom have had wide experience with the Organization in Syria and other countries.

The Government has assigned a large staff of technicians and other workers to this programme and has established a temporary department, called the Department of Malaria Eradication in the Ministry of Health and Public Assistance.

diseases, and certain countries have recently amended their legislation in this sense.

Because in recent years the incidence of venereal diseases has diminished in some countries, owing no doubt to the advances made in the treatment of these diseases, as well as to other factors such as improved economic conditions, housing conditions, and employment opportunities, it may be asked whether the survey of comparative legislation that has just been published in the *International Digest of Health Legislation* is not of purely academic interest. To be sure, the incidence of syphilis has been falling in many countries, but not in all; moreover even in countries for which reliable statistical data are available, it is by no means certain that there has been any diminution in the incidence of gonorrhoea. Voices have been raised against the premature abolition of venereal disease control measures. Three important organizations in the United States, for example—the Association of State and Territorial Health Officers, the American Venereal Disease Association, and the American Social Hygiene Association—expressed the view in a joint declaration made in February 1955 that “despite great strides in

venereal disease control, complete control is not yet imminent”. Venereal diseases continue to present a potential danger even in countries in which their incidence has been reduced to a very low level. Existence of infection may easily flare up when social conditions are disturbed or during wartime or whenever circumstances favourable to sexual promiscuity are present. Moreover the speed of international traffic must also be considered a factor in the propagation of the disease. Certain preventive measures provided for in venereal disease legislation should not be abandoned without careful consideration. As for legal measures designed to prevent congenital syphilis, it is obviously wise to maintain them.

The survey published in the *International Digest of Health Legislation* covers venereal disease legislation (historical), venereal diseases covered by legislation, notification of venereal diseases, examinations required by law, compulsory treatment and hospitalization, duties of medical practitioners, infection or exposing another to infection, publicity and charlatanism, employment and venereal diseases, child welfare, and organization of venereal disease control.

Notes and News

Eighteenth Session of Executive Board

Following its usual procedure, the WHO Executive Board met for a brief session, from 28 to 30 May 1956 after the closure of the Health Assembly. This session was devoted largely to administrative matters.

The Board selected the subjects for technical discussion at the Tenth and Eleventh World Health Assemblies: in 1957 the topic will be “The Role of the Hospital in the Public Health Programme” in 1958

“Health Education of the Public”. It discussed and authorized publication of the second report of the Expert Committee on Maternal and Child Health.

A voluntary contribution from the Government of Brunei was acknowledged with thanks.

The Board decided that the Tenth World Health Assembly would be held in Geneva, beginning 7 May 1957.

At its next session, which is to open 15 January 1957 the Board will have on its

improvement of nursing education and nursing service in all the countries represented. It is expected that the Fourth Congress will even greater opportunities in view of additional experience acquired and the wider interest shown in nursing during recent years.

3. Group on the Psychobiological Development of the Child

In 1953 WHO convened a study group composed of outstanding representatives of a wide range of disciplines to discuss freely and informally from their various viewpoints psychobiological development of the child. This study group met again in 1954 and 1955 and is to hold its final session in September 1956.

The regular members of this study group are: Dr J. Bowlby, Director, Children's Department, Tavistock Clinic, London, Eng.; and Dr F. Fremont-Smith, Josiah Macy Jr. Foundation, New York, N. Y., USA; Dr B. Inhelder, Professor of Child Psychology, Institut des Sciences de l'Éducation, Geneva, Switzerland; Dr K. Z. Lorenz, Forschungsstelle für Verhaltensphysiologie des Max Planck Instituts für Meeresbiologie, Badern, Germany; Dr Margaret Mead, Associate Curator of Ethnology, American Museum of Natural History, New York, N. Y., USA; Dr K. A. Melin, Clinic for Convulsive Disorders, Stockholm, Sweden; Dr M. Monnier, Laboratoire de Neurophysiologie appliquée, Geneva, Switzerland; Professor J. Piaget, Institut de Psychologie, Paris, France; Dr A. Remond, Charge de Recherche, Centre National de la Recherche Scientifique, Paris, France; Dr J. M. Tanner, Institute of Child Health, The Hospital for Sick Children, London, England; Dr W. Grey Walter, Burden Neurological Institute, Bristol, England; and Dr R. Zazzo, Director of the Laboratoire de Psychobiologie de l'Enfant, Paris, France.

At its first meeting the group considered many aspects of child development including physiological growth, integration of motor functions by the central nervous system, stages in mental development as shown by

psychological tests and as related to scholastic stages "instinctive" versus "conditioned" behaviour, electroencephalographic records as related to personality, possible early displacement of instinctive responses and variations from one culture to another in what is regarded as normal in child development. Some of these topics were further discussed at the second meeting. It was shown how contributions could be made to the understanding of what is "normal" development through animal experiments on behaviour, cybernetic models and anthropological studies. The third meeting was devoted mainly to the subject of socio-cultural influences in the development of sex differences and of the sense of identity. An attempt was made to translate the stages described in the development of identity into neurophysiological terms with reference also to cybernetic parallels.

At its fourth and final meeting the group intends to try to synthesize the points of view of the disciplines which it represents and to reach some general agreement as to the interaction of the factors involved in child development, the way characteristic stages follow one another and the actual mechanisms involved when one stage succeeds another. It has been admitted that searching for a "common language" to facilitate understanding between the representatives of different specialties is of fundamental importance.

Considerable preparatory work has been undertaken for this meeting. Professor Piaget, who was requested to make the initial presentation at the meeting, has circulated to group members a stimulating paper on the general problems of the psychobiological development of the child; this is expected to serve as a starting point of the discussions. Several other members of the group have submitted comments on Professor Piaget's paper and have replied to specific questions addressed to them. In addition a film is being made at the instigation of Dr Bärbel Inhelder at the Institut des Sciences de l'Éducation of the University of Geneva. WHO has contributed financially to the

Expert Committee on Rheumatic Diseases Second Session

The first report of the Expert Committee on Rheumatic Diseases convened by WHO in 1953 stated that rheumatic fever, a disease in which infection with haemolytic streptococci is believed, on good evidence to be an important initial factor, can be controlled and perhaps prevented by the use of antibiotics and sulfonamide drugs¹. The possibility of controlling rheumatic fever and its serious cardiovascular sequelae by the prophylactic use of these drugs has raised great hopes especially in countries where other acute infectious diseases have been brought under control and the problem of rheumatic fever has become relatively more important. In recent years extensive trials of antibiotics and sulfonamides in the prevention and control of rheumatic fever and rheumatic heart disease have been made, and the results appear to be very encouraging.

Another session of the Expert Committee on Rheumatic Diseases will be held in Geneva from 1 to 5 October 1956. The subject of this meeting is to be the prevention and control of rheumatic fever and rheumatic heart disease. Discussion will be confined to study of the epidemiology of these diseases and to a review of practical methods for their prevention and control from the standpoints of both the individual and the community.

Fourth Regional Nursing Congress in the Americas

Since 1949 three congresses have provided an opportunity for nursing leaders in the Americas to discuss professional problems and ways of meeting them. As an educational process these contacts between nurses from countries where the profession is in its initial stages and from those where it is more advanced have proved very fruitful. Sponsored by the Pan American Sanitary Bureau and the World Health Organization the meetings are actively supported by the gov-

ernments of the various countries which send one or more nurses and pay their expenses.

The Fourth Congress is planned for 9 to 15 September 1956 and is to be held in Mexico City at the invitation of the Mexican Government. A local planning committee has been appointed by the Mexican Nurses Association and a large number of national nurses are now working on the preparation of various phases of the congress.

By polling all nursing associations in Latin America the theme Administration in Nursing was selected for discussion from a list of topics suggested at the preceding congress in Rio de Janeiro (1953). Four days are to be reserved for group meetings. During the first two days discussions will centre on general principles of administration and each discussion group will be made up of representatives of many fields of nursing. On the last two days discussions will cover administration of nursing education programmes, auxiliary nursing programmes and public health or hospital nursing services and each group will be composed of nurses interested in specific services or programmes. A number of PASB/WHO and International Cooperation Administration nursing advisers have been invited to participate in the group discussions.

All Member Governments of the PASB/WHO and all nurses associations throughout Latin America have been asked to send representatives to the congress. The International Council of Nurses and the International Committee of Catholic Nurses both of which are in official relations with WHO have also been invited as well as the International Cooperation Administration, the Rockefeller Foundation, the Kellogg Foundation and the League of Red Cross Societies. In addition a general notice of the congress has been sent for publication in the nursing journals of the Western hemisphere to inform all graduate nurses that they will be welcome.

Specific recommendations made at previous regional nursing congresses and the information exchanged during the discussion of common problems have contributed to the

closer co operation between schools and training centres of public health ?

Educators and public health administrators from Austria Belgium Denmark Finland France Germany Greece Iceland Ireland Italy the Netherlands Norway Portugal Spain Sweden Switzerland Turkey the United Kingdom and Yugoslavia participated in the conference

Agreement on African Office Signed

On 22 June 1956 an agreement was signed in Geneva between the French Government and the World Health Organization concerning the WHO Regional Office for Africa in Brazzaville French Equatorial Africa. The Office will actually be located in Cité du Djoue which is about 9 km from Brazzaville

Under the agreement the French Government undertakes to build administrative offices and to provide accommodation for the WHO office and its staff and to lease this accommodation to the Organization for 18 years a token payment to be made yearly by the Organization for the lease of the grounds and the administrative buildings. In addition the French Government is to furnish all facilities and services to the WHO establishments including the maintenance of roads insect control etc. The Organization is entitled to share the grounds and buildings at its convenience with international organizations with which it is in official relations

The WHO Regional Office for Africa has been located in Brazzaville since 1952. It now has a staff of 90 persons and is participating in about 100 health projects in more than 30 countries and territories south of the Sahara

Survey of Argentine Health Services

At the request of the Government of Argentina the Pan American Sanitary Bureau which acts as WHO Regional Office for the Americas is assisting in a comprehensive survey of health problems and resources of that country. In April 1956 a group of consultants accompanied Dr Carlos Luis

Gonzales Assistant Director of the PASB to Buenos Aires for a preliminary meeting with Government officials and local representatives of the PASB. This group was composed of Dr Paulo C. A. Antunes Professor of Applied Parasitology and Public Health University of São Paulo Brazil former Assistant Director of the PASB Dr W. Palmer Dearing Deputy Surgeon General United States Public Health Service and Dr Abel Wolman Professor of Sanitary Engineering Johns Hopkins University School of Hygiene and Public Health Baltimore Md USA. Together with other consultants they constituted an international commission which was scheduled to meet for the first time in July to discuss with Government officials recommendations for the reorganization and development of the health services of Argentina

Public Health Programme for Assam

WHO and UNICEF have entered into an agreement with the Government of India to assist in the development of comprehensive public health services in the State of Assam. Plans have been drawn up for a programme in which 23 hospitals 15 maternal and child health centres and other smaller health units throughout the State will participate. These plans call for expansion and upgrading of rural health services with particular reference to maternal and child health expansion of training for nurses and midwives and development of training courses for sanitarians improvement of medical and nursing under graduate teaching and training in paediatrics and intensification of health education activities

Specifically over a period of two years it is planned to set up 30 new health units to provide complete maternal and child health service medical care communicable disease control sanitation and school health and health education services to upgrade at least 50 of the 480 dispensaries and 82 maternal and child health centres in various stages of development in the State to provide public health courses for district medical

making of this film which will be used as illustrative case material for the meeting. To illustrate further the possibilities of co-ordinating the work of the different disciplines studies on a group of children are to be carried out jointly by the above institute (from the psychological aspect), by Dr Grey Walter (from the electrophysiological aspect) and by Dr Tanner (from the physiological aspect). Furthermore Dr Melin expects to have completed for the meeting a review of data on the electrophysiological development of the child's brain. This study arose out of the study group's earlier discussions and has been carried out during short periods of Dr Melin's employment as a WHO consultant during which he has been enabled to meet workers in this field from different countries.

At each of the group's meetings there has been one or more guest members. At this final meeting Professor C. von Bertalanffy, Director of Biological Research at Mount Sinai Hospital, Los Angeles, Calif., USA, will be the guest. He is preparing a paper which seeks to link up some of his own work with that of other members of the group and to contribute to the quest for inter-disciplinary co-ordination. Also participating in the meeting will be Mr E. Erikson, Austen Riggs Center, Inc., Stockbridge, Mass., USA, who was a guest at the last meeting, and Dr G. R. Hargreaves, former Chief of the Mental Health Section at WHO Headquarters, now Professor of Psychiatry at Leeds University, Leeds, England.

Fifth European Seminar for Sanitary Engineers

Sanitary engineers and public health officials from 22 countries met in Helsinki from 23 to 29 July 1956 to take part in the Fifth European Seminar for Sanitary Engineers, sponsored jointly by the WHO Regional Office for Europe and the Government of Finland. At this seminar specific aspects of water pollution were dealt with following up discussion of the general problem of water pollution which was the main theme of the fourth seminar, held in Opatjia, Yugoslavia, in 1954.

The principal topics considered at the Helsinki seminar were (1) the pollution problem in relation to water economy as a whole, (2) the present situation with regard to ground water pollution in European countries and measures directed at its prevention, (3) the dangers associated with the disposal of certain toxic industrial wastes, (4) special problems in the northern European countries in disposing of pulp mill wastes, and (5) the increasingly important problem of the safe disposal of radioactive wastes. Some of the papers which served as starting points for the seminar discussions are to be published in a forthcoming number of the *Bulletin of the World Health Organization*.

Conference on Training in Hygiene and Preventive and Social Medicine

As part of WHO's education and training programme in Europe, three conferences on the teaching of hygiene and preventive and social medicine have been organized by the Regional Office for Europe: the first on undergraduate teaching was held in Nancy, France, in 1952; the second on post graduate training in Göteborg, Sweden, in 1953; and the third, also on post graduate training, in Zagreb, Yugoslavia, from 2 to 7 July 1956.

The Zagreb conference like its predecessor gave directors and staff of schools and training centres of public health an opportunity to discuss common problems with leading public health administrators. The following questions were considered in the light of the existing situation in the countries of Europe:

1. What are the needs for various categories of health officers in different countries?
2. What training is needed for these various categories?
3. How can training institutions best be organized to meet these needs?
4. What methods can be developed for

Information furnished by the Nancy and Göteborg conferences has been used in the preparation of a monograph which is soon to be published by WHO. Gru dy F. & Mackintosh, J. M. (1956) *The teaching of hygiene and public health in Europe: a review of training and re-education and post graduate education in the countries of Europe*.

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Educators and public health administrators from Austria Belgium Denmark Finland France Germany Greece Iceland Ireland Italy the Netherlands Norway Portugal Spain Sweden Switzerland Turkey the United Kingdom and Yugoslavia participated in the conference

Agreement on African Office Signed

On 22 June 1956 an agreement was signed in Geneva between the French Government and the World Health Organization concerning the WHO Regional Office for Africa in Brazzaville French Equatorial Africa. The Office will actually be located in Cite du Djoug which is about 9 km from Brazzaville.

Under the agreement the French Government undertakes to build administrative offices and to provide accommodation for the WHO office and its staff and to lease this accommodation to the Organization for 15 years a token payment to be made yearly by the Organization for the lease of the grounds and the administrative buildings. In addition the French Government is to furnish all facilities and services to the WHO establishments including the maintenance of roads insect control etc. The Organization is entitled to share the grounds and buildings at its convenience with international organizations with which it is in official relations.

The WHO Regional Office for Africa has been located in Brazzaville since 1952. It now has a staff of 90 persons and is participating in about 100 health projects in more than 30 countries and territories south of the Sahara.

Survey of Argentine Health Services

At the request of the Government of Argentina the Pan American Sanitary Bureau which acts as WHO Regional Office for the Americas is assisting in a comprehensive survey of health problems and resources of that country. In April 1956 a group of consultants accompanied Dr Carlos Luis

Gonzales Assistant Director of the PASB to Buenos Aires for a preliminary meeting with Government officials and local representatives of the PASB. This group was composed of Dr Paulo C. A. Antunes Professor of Applied Parasitology and Public Health University of São Paulo Brazil former Assistant Director of the PASB Dr W. Palmer Dearing Deputy Surgeon General United States Public Health Service and Dr Abel Wolman Professor of Sanitary Engineering Johns Hopkins University School of Hygiene and Public Health Baltimore Md USA. Together with other consultants they constituted an international commission which was scheduled to meet for the first time in July to discuss with Government officials recommendations for the reorganization and development of the health services of Argentina.

Public Health Programme for Assam

WHO and UNICEF have entered into an agreement with the Government of India to assist in the development of comprehensive public health services in the State of Assam. Plans have been drawn up for a programme in which 23 hospitals 15 maternal and child health centres and other smaller health units throughout the State will participate. These plans call for expansion and upgrading of rural health services with particular reference to maternal and child health expansion of training for nurses and midwives and development of training courses for sanitarians improvement of medical and nursing under graduate teaching and training in pediatrics and intensification of health education activities.

Specifically over a period of two years it is planned to set up 30 new health units to provide complete maternal and child health service medical care communicable disease control sanitation and school health and health education services to upgrade at least 50 of the 480 dispensaries and 82 maternal and child health centres in various stages of development in the State to provide public health courses for district medical

officers at the All India Institute of Hygiene and Public Health Calcutta, and refresher courses for medical officers in charge of rural health units, to improve and expand the training of nurses nurse midwives and auxiliary personnel, to arrange a one year course for sanitarians and refresher courses for those already in service to construct a 50 bed children's hospital to facilitate training in paediatrics and to intensify health education programmes by adding two new health education units to the two already functioning and providing refresher courses and special training for teachers

The Director of Health Services of Assam will be immediately responsible for this project, to which WHO will assign a medical officer two public health nurses, and a sanitarian and for which UNICEF will provide essential equipment and supplies

Blood Bank for Jordan

WHO is assigning an adviser to the Government of the Hashemite Kingdom of the Jordan to help in setting up a blood transfusion and blood bank service, which will also be used as a demonstration unit for training doctors, nurses and other workers in the required techniques. The project is being financed by the Government with aid from United Nations Technical Assistance

The first blood bank unit will be established in a new maternity hospital in Amman. The WHO adviser is expected to assist for a year in initiating the service and training personnel after which the blood bank will become a permanent part of the hospital services of the country

Environmental Sanitation Studies in Taiwan

The Chinese Institute of Environmental Sanitation, to which WHO gives assistance through the services of a public health engineer is taking an active part in the improvement of night soil practices in Taiwan. In March 1956 the Institute sponsored a conference in Taipei to discuss the problem of organic waste utilization, 17 organizations were represented and reports were presented on current work and problems. In addition

to providing an opportunity for an exchange of information and opinion this conference fulfilled a co-ordinating function in proposing a distribution of work on night soil practices. This work is to include (1) night soil sampling and analysis, involving the establishment of standard procedures for sampling and analysis, actual field sampling and analysis and studies of the effect of night soil storage on destruction of pathogens and loss of nitrogen (2) experimental studies on gas production from night soil and the development of household digestion units to produce gas for fuel, (3) field studies on composting and (4) studies on the heat treatment of night soil

The Institute is also engaged in programmes for the improvement of rural sanitation school sanitation and meat hygiene and in the training of sanitarians

Health Worker Victim of Rabies

News has been received at WHO Headquarters of the death of one of the men working on a rabies control project in the Americas in which WHO has been participating for a number of years. The victim was an entomologist employed by the Texas State Department of Health, one of the co-operating agencies in a WHO co-ordinated study of the role of bats in rabies transmission and had been working for about a year and a half on the project. He was a field worker and had done a great deal of bat banding and collecting of bat specimens. Although there was no history of his having been bitten at any time by bats or other animals he developed symptoms of rabies and subsequently died. However actual exposure would not be entirely ruled out because of the presence of a "weeping sore" on the base of his neck while he was working in the bat caves. Rabies virus was isolated from his brain.

The United States Public Health Service has arranged for all its field men engaged in this work to undergo inoculation with an experimental vaccine which is being investigated, partly under the auspices of WHO for its value in rabies prophylaxis prior to possible exposure to the disease.

People and Places

Public health engineers Dr A. G. Friend, formerly with the Virginia State Department of Health USA has been appointed by PASB/WHO to aid in environmental sanitation programmes in the Caribbean area. His duty station is Barbados. Mr E. Izumeta, who was Chief of the Design Division of the Inter American Cooperative Public Health Service Quito and professor at Quito's Universidad Central has been assigned to work with the public health services in Bogotá Colombia.

Tuberculosis consultant Dr A. Penington has gone to Taiwan as medical consultant to assist the Government in the expansion of its tuberculosis control services and in integrating into the country's public health services a BCG vaccination campaign which has been in progress since 1951. Dr Penington who is from Australia has had considerable experience in tuberculosis control in Great Britain and in the USA as well as in his own country.

Psychiatric nurse Miss I. I. Marwick has been appointed as a consultant on psychiatric nursing for the Western Pacific Region in which capacity she is to visit Singapore, the Federation of Malaya, Taiwan and the Philippines to help plan the development of educational programmes in mental health and psychiatric nursing. Miss Marwick is the Matron of the Tara Hospital in Johannesburg Union of South Africa. She has had education in mental nursing (diploma from the University of London) as well as in general nursing and midwifery. She is a member of the WHO Expert Advisory Panel on Nursing and was one of the participants in the meeting of the WHO Expert Committee on Psychiatric Nursing in 1955.

Teachers for Institute of Hygiene Manila Under a programme of assistance in which the University of the Philippines, Johns Hopkins University (Baltimore Md USA), the Rockefeller Foundation, and WHO have been collaborating since 1953, the Organization has assigned two teachers to the

Institute of Hygiene of the University of the Philippines for the academic year 1956-57. Mrs Ruth Freeman Fischer, nursing consultant, and Mr W. G. Cochran, consultant in biostatistics, both of whom are professors at the School of Hygiene and Public Health of Johns Hopkins University.

Medical social service consultant Mrs G. Beckman is serving as a consultant on medical social service in Japan. Mrs Beckman who is Social Service Consultant of the California State Department of Public Health USA will assist the Japanese Government in training courses at the Institute of Public Health in Tokyo and at other institutions in the country.

Health educator Professor Lucy S. Morgan, Head of the Department of Health Education at the School of Public Health, University of North Carolina, Chapel Hill, N.C. USA, is serving as a short term consultant with WHO. Professor Morgan is assisting in the preparation of a study guide on the training of health personnel in principles and methods of health education. In the course of her assignment she is consulting the government authorities concerned in Egypt, Iran, Jordan, Lebanon, and the United Kingdom.

Hospital administrator Mr James A. Willan, a hospital administrator from the United Kingdom, has been appointed by WHO to advise the Federation of Malaya on hospital administration and to train local staff in this field. Mr Willan has had more than twenty years of experience in hospital administration in various cities in the United Kingdom, Canada and the USA. Most recently he was consultant to the Government of Canada in Ottawa.

Area representatives Dr W. W. Yung, Director of the WHO Epidemiological Intelligence Station in Singapore, has been named Area Representative for Brunei, the Federation of Malaya, North Borneo, Sarawak and Singapore. Earlier this year Dr A. E. Brown, who had served as WHO public

health administration specialist in Cambodia and Viet Nam, was appointed Area Representative for Cambodia Laos and Viet Nam, with headquarters in Saigon

Chief of education section Dr S Middleton has been named Chief of the Professional Education Branch of the PASB Washington

Office Dr Middleton is a graduate of the Medical School of the University of Chile and has pursued advanced studies at Western Reserve and Columbia Universities in the USA Before his appointment with PASB/WHO, he was associate professor at the Institute of Physiology of the University of Chile

OBITUARY

Dr E M Lourie Chief of the Biological Standardization Section of the World Health Organization since 1952, died suddenly on 11 August 1952 in Geneva

Dr Lourie was born in Johannesburg South Africa in 1904 After attending University College and University College Hospital Medical School in London he worked at the London School of Hygiene and Tropical Medicine Later he practised in hospitals in England and as a ship's surgeon for a number of years following which he was a Research Fellow in chemotherapy with the Rockefeller Foundation in New York from 1931 to 1933 He then joined the Medical Research Council in England for which he worked for some years two of them being spent in the colonial service at Freetown Sierra Leone in a programme of testing drugs against trypanosomiasis Later he was appointed Director of the Department of Chemotherapy at the Liverpool School of Tropical Medicine His last position before joining WHO was with the Department of Pharmacology at the University of Oxford

Dr Lourie's scientific work included contributions to the study of chemotherapy trypanosomiasis pharmacology and other subjects In 1945 he was awarded the Chalmers Medal by the Royal Society of Tropical Medicine and Hygiene London

Review of WHO Publications

The Training of Sanitary Engineers Schools and Programmes in Europe and in the United States By Milivoj Petrik Geneva 1956 (*World Health Organization Monograph Series* No 32) 151 pages Price £1 \$4.00 or Sw fr 12—

In almost every country the demand for qualified engineers far exceeds the ability of existing educational institutions to supply them. This lack of opportunity for specialized study in a field of great importance to health improvement is of concern to WHO and in an effort to increase recognition of the need for sanitary engineers and to encourage development of facilities for training them the Organization among other relevant activities sponsored a symposium on the training of sanitary engineers in Europe. In preparation for this symposium, Professor Milivoj Petrik of the University of Zagreb Yugoslavia made an extensive survey of European schools and programmes. Professor Petrik's findings and his comments thereon form the body of this monograph.

It is believed that information of the type contained in Professor Petrik's survey has never before been assembled in one publication. By means of personal visits corre-

spondence and study of the available programmes the author collected all the information he could concerning training in sanitary engineering in 16 European countries—Austria Belgium Denmark Finland France Germany Greece Ireland Italy the Netherlands Portugal Spain Switzerland Turkey the United Kingdom and Yugoslavia. In addition he undertook a review of sanitary engineering education in a selected number of teaching institutions in the USA since this is the country in which specialization and education in this subject have reached the highest level. Details concerning the curricula offered in ten accredited schools of public health the engineering faculties of thirteen universities and the Massachusetts Institute of Technology are given for purposes of comparison with European courses.

A report on the symposium itself appears in an annex to the text proper.

This survey reveals great disparities among European countries in the education offered in and recognition accorded to sanitary engineering as a special branch of engineering. It calls attention to fundamental needs and through comparison with sanitary engineering education in the USA offers suggestions for further developments in Europe and other parts of the world.

CORRIGENDA

Vol 10 No 5

MORTALITY FROM ACCIDENTS (Other than Transport Accidents)

Page 138 left hand column line 3

delete diseases

insert all infectious and parasitic diseases

Page 140 left hand column paragraph (a) line 3

delete diseases

insert of the most important diseases

Page 141 right hand column paragraph *Accidental falls* lines 5-11

delete The persons significant

insert In all countries mortality from accidental falls is highly concentrated as to relative importance in the age group 65 years and over (see Table III)

Page 141 Table III title

delete the title

insert **TABLE III RELATIVE IMPORTANCE (%) OF THE MORTALITY CAUSED BY ACCIDENTAL FALLS AT CERTAIN AGES BY SEX**

LOS TRANSPORTES INTERNACIONALES Y LA PROTECCION
SANTARIA

Estudio de la reglamentacion sanitaria internacional

por

Dr H S GEAR

Director General Adjunto

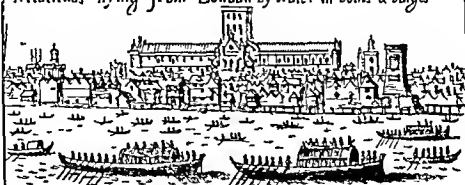
Departamento de Servicios Tecnicos Centrales

Z. DEUTSCHMAN

Sección de la Cuarentena Internacional

Antecedentes historicos	297
Prácticas de la cuarentena en la antigüedad	297
Conferencias sanitarias internacionales del siglo XIX	299
Conferencias y convenios del siglo XX	304
Evolucion e importancia actual de las enfermedades cuarentenables	306
El cólera	306
La peste	311
El tifus exantemático	316
La fiebre recurrente	319
La viruela	321
La fiebre amarilla	326
Conclusiones	333
Creciente importancia del movimiento internacional de viajeros y mercancías	334
El Reglamento Sanitario Internacional (Reglamento N° 2 de la OMS)	339
Preparación y aprobacion del Reglamento	339
Procedimiento y trámites para la aceptación presentación de reservas y rocha zamiento	340
Algunas disposiciones del Reglamento	342
Servicios encargados de la aplicación del Reglamento	340
Aplicación del Reglamento y sus resultados	353
Mirando al porvenir	356
Anexo 1 La cuarentena internacional fechas y datos importantes	360
Anexo 2 Obligaciones contraídas por los Estados Miembros de la OMS en virtud de los convenios códigos y acuerdos sanitarios internacionales vigentes en marzo de 1952	361
Anexo 3 Situacion de los Estados y Territorios el 1° de octubre de 1956 respecto al Reglamento Sanitario Internacional	364
Publicaciones de la OMS sobre cuarentena internacional y enfermedades cuarentenables	367

Multitude flying from London by water in boats & barges



Flying by land

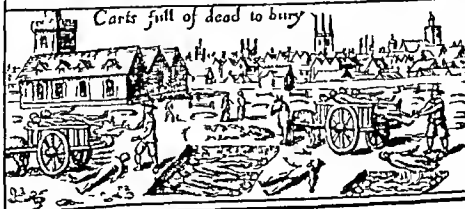


Burying the dead with a bell before them

Searchers



Carts full of dead to bury



ANTECEDENTES HISTORICOS

PRACTICAS DE LA CUARENTENA EN LA ANTIGÜEDAD

La historia de la legislación sanitaria refleja la evolución de las ideas y teorías epidemiológicas y de la lucha contra las enfermedades transmisibles. Mientras se pensaba que el origen de la enfermedad estaba siempre en un enfermo, parecía fácil impedir el contagio: bastaba aislar a los enfermos para que no se propagara la infección. Se observó sin embargo que ese aislamiento no detenía su progreso, no obstante la lentitud con que se hacían entonces los viajes por rutas conocidas y a pesar de que la amenaza de la pena de muerte solía bastar para que el enfermo obedeciera las instrucciones que se le daban de mantenerse aislado.

Se ignora donde y cuándo comenzó el aislamiento de los enfermos por determinados periodos como medida preventiva. Hay quien lo atribuye a la República de Ragusa, en 1377 y otros a la de Venecia, pero todos coinciden en que pronto prevaleció la costumbre de imponer un periodo de detención de 40 días — o *quarantena* — a todos los viajeros y mercancías que se suponían infectados. De ahí viene la palabra «cuarentena» aplicada hoy a todas las medidas sanitarias de ese género. A principios del siglo XV Venecia creó la primera estación de cuarentena llamada «lazaretto». Otras ciudades y gobiernos siguieron poco a poco el ejemplo hasta que en el curso de los cinco siglos siguientes se fueron generalizando en muchos países los rudimentos de una reglamentación sanitaria.

Fundábase la cuarentena en la idea de que el transcurso del tiempo daba a la enfermedad latente ocasión de manifestarse y permitía la «disipación» del mal que traían las personas

o las mercancías procedentes de una región infectada. McDonald ha descrito algunas de aquellas prácticas.

El ritual de la cuarentena en los puertos del Mediterráneo y del Adriático donde abundaban los lazaretos y se aplicaba rigurosamente la ley, era algo en verdad admirable. Al arribar los barcos recibían la visita del oficial competente que con gran lujo de precauciones y profusión de vinagre esgrumía unas tenazas de hierro para examinar la patente de sanidad y prescribir si había lugar a ella la cuarentena correspondiente. En caso de peste se aplicaba el máximo rigor durante 80 días. Se subían las mercancías a cubierta para exponerlas al aire o se revolaban los fardos a diario durante 20 días. Cuando había algodón en el cargamento se abrían las balas y diariamente durante 60 días los expurgadores tenían que sacudir el contenido de las mismas en el aire. Para considerar que no estaba infectado el algodón era preciso que ninguno de ellos contrajera la peste. Al mismo tiempo se recluía en el lazareto a los tripulantes y pasajeros y diariamente se les examinaban las aúlas y la ingle para comprobar su sensibilidad. Ese procedimiento se atenúa en los barcos que venían limpios de infección aunque procedieran de puertos infectados. Se reducía entonces el periodo a 20 días y el examen del algodón sólo consistía en introducir un brazo desnudo en cada bala. A veces las autoridades locales se tomaban mucho menos interés y se limitaban a aislar pasajeros, tripulantes y mercancías durante un periodo que podía oscilar entre 20 y 40 días y sólo si se producía algún caso de infección tomaban otras disposiciones.¹

La oposición que se hizo sentir por fin a la cuarentena procedía de medios diferentes: unos negaban su utilidad desde el punto de vista médico, otros se proponían suprimirla por principio y a otros, en fin, les perjudicaba su aplicación.

Entre los adversarios que alegaban razones médicas estaban los «miasmistas» que comprendían algunos de los más eminentes reformadores sanitarios y rechazaban la teoría del

¹ McDonald, J. D. (1951) *Bull. Hyg. Med.* 25, 22.

contagio y que dudaban de que la cuarentena tuviera verdadera utilidad. Como aquellas medidas obstructoras se basaban en suposiciones más que en un conocimiento científico de las enfermedades contra las que estaban dirigidas, sus fracasos neutralizaban sus éxitos, los cuales se debían en la mayor parte de los casos a la buena suerte y no a la eficacia del sistema.



Un médico de Marsella en 1720 vestido con la indumentaria de protección (Manget 1721)

Con autorización de la Clarendon Press. O'ford (Hurst L. Fabian 1953 *The coming of plague*)

La oposición política venía de quienes consideraban la cuarentena un instrumento del Estado para injerirse en la vida privada. Sus censuras estaban justificadas por la arbitrariedad de las leyes de la cuarentena que otorgaba a las autoridades encargadas de aplicarlas un poder de vida y muerte. En 1825 se promulgó en Inglaterra la última Ley de

Cuarentena que todavía imponía pena de muerte a quienes en determinadas circunstancias entraran en comunicación con personas a bordo de un barco en cuarentena.

Podrían citarse innumerables ejemplos de los graves trastornos que ocasionaban aquellas medidas. John Howard, el reformador del régimen penitenciario en Inglaterra, y J. J. Rousseau entre otros hicieron descripciones directas de la incomodidad y rudeza características de la reclusión en los lazaretos del siglo XVIII. En épocas anteriores las condiciones debieron de ser más duras todavía.

El mejoramiento de los medios de locomoción y el fomento del comercio sobre todo a raíz de la revolución que el vapor operó en los transportes hicieron todavía más insostenible el rigor de la cuarentena. Ejemplo notable de las situaciones absurdas y de los perjuicios injustificados que provocaban a veces aquellos arbitrarios reglamentos de la cuarentena fue la desventurada odisea del barco italiano *Maico Bru* que zarpó de Genova con rumbo a Montevideo el 30 de septiembre de 1884. Cuando el barco llegaba a su destino se declaró el cólera a bordo y no le dejaron tomar puerto ni en Montevideo ni en Río de Janeiro. Obligado a regresar a Italia tuvo que pasar la cuarentena en la isla de Pianosa, cerca de la de Elba. Cuando los pasajeros desembarcaron por fin en Liorna habían tardado casi cuatro meses para recorrer en definitiva una distancia de 125 kilómetros.

La impotencia de los gobiernos ante las pandemias como ocurrió en el siglo XIX con el cólera, las teorías antagónicas sobre el origen y la propagación de las infecciones y la impaciencia creciente con que reaccionaban los medios comerciales ante los daños causados por unas restricciones que variaban de un país a otro y que en cualquier caso no parecían tener bastante eficacia para

Goodman N. M. (1952) *The national health* and its work. London pág. 34

justificar su aplicación contribuyeron a crear una atmósfera favorable a la cooperación internacional para reglamentar la cuarentena

CONFERENCIAS SANITARIAS INTERNACIONALES DEL SIGLO XIX

Primera conferencia

En 1834 y en 1843 se había propuesto ya que se celebrara una conferencia internacional sobre cuestiones relacionadas con la cuarentena pero en realidad hasta el año 1851 no llegó a reunirse la primera conferencia sanitaria internacional. La convocó el gobierno de Francia y se inauguró en París el 23 de julio. Doce Estados — Austria las dos Sicilias España los Estados Pontificios Francia Gran Bretaña Grecia Portugal Rusia Cerdeña Toscana y Turquía — estuvieron representados en ella cada uno por un diplomático y un médico ya que el objeto de la reunión era a la vez técnico y general.

En el curso de la conferencia salieron a relucir las diversas teorías epidemiológicas de la época y se impusieron ciertos criterios sobre la cuarentena. Gran Bretaña se oponía absolutamente a cualquier restricción de esa índole. Los países mediterráneos y Rusia eran partidarios de la aplicación de medidas rigurosas. Austria consideraba innecesaria la cuarentena contra el cólera. Francia adoptó una actitud intermedia y trató de conciliar los intereses comerciales con las medidas de cuarentena impulsadas por el temor de que se repitieran epidemias como la peste de Marsella en 1720.

La Conferencia duró seis meses. A través de muchas dificultades se consiguió preparar un reglamento sanitario internacional de 137 artículos sobre el cólera la peste y la fiebre amarilla pero el convenio que lo ponía en vigor no fue ratificado más que por Francia y otros dos países — Portugal y Cerdeña — que en 1865 rescindieron la obligación que habían contraído.

Es interesante recordar que en esa conferencia el representante diplomático español A. M. Segovia propuso la creación de un tribunal internacional en cuestiones sanitarias. Inglaterra y Francia estaban dispuestas a apoyar la propuesta pero tropezaron con la oposición de la mayor parte de los demás países que la consideraron atentatoria a la soberanía nacional.

Aunque el convenio pronto cayó en el olvido esa conferencia abrió una nueva era en la historia de la cooperación sanitaria entre los países y la reglamentación sanitaria internacional. La importancia de la conferencia en ese aspecto ha sido certeramente puesta de relieve por Goodman.

Por primera vez, se reunían médicos y diplomáticos que representaban oficialmente a doce países para discutir problemas sanitarios. Por primera vez, se redactaba un convenio sanitario que contenía un reglamento internacional destinado a uniformar los métodos de cuarentena. Por primera vez, se llegaba a un acuerdo sobre algunos importantes principios que más tarde tuvieron aplicación práctica en la esfera internacional como por ejemplo la regla de no poner en cuarentena los buques con patente limpia si los que de otro modo demostraran estar libres de infección. El establecimiento de períodos máximos y mínimos distintos en cada una de las tres enfermedades de que se ocupaba el convenio, la obligación de que en el puerto de salida se tomaran las medidas oportunas para hacer el viaje en buenas condiciones sanitarias, la creación de estaciones de cuarentena (lazaretos) que tuvieran el carácter de un hospital más que el de una prisión y en donde se cumplieran las prescripciones de la cuarentena, el compromiso de no negar a los barcos la entrada a puerto cuando llevaran a bordo algún caso de enfermedad pestilencial, la declaración de que las tarifas de la cuarentena debían ser uniformes y de que no podían ser consideradas como una fuente de ingresos, el reconocimiento de la gran utilidad de las informaciones epidemiológicas enviadas por funcionarios médicos independientes establecidos en las regiones de donde procedía la infección, así como la conveniencia de ampliar ese sistema.

Y la verdad es que las discusiones internacionales de los cincuenta años siguientes no consiguieron alterar los principios fundamentales de aquel primer convenio sanitario internacional. Tenemos, pues, razones suficientes para considerar que la Conferencia

MINISTÈRE DES AFFAIRES ÉTRANGÈRES

Annuaire of the International Sanitary

PROCÈS-VERBAUX

Conférence ¹⁸⁵¹

CONFÉRENCE SANITAIRE INTERNATIONALE

OUVERT A PARIS

held at Paris

LE 27 JUILLET 1851

27 July 1851, 29

TOME I



PARIS

IMPRIMERIE NATIONALE

MDCCL

Portada de las actas de la Conferencia Sanitaria Internacional celebrada en 1851

Con autorización de J. & A. Church & Co., Londres (Goodman, N. M. 1952, International health organization and the world)

de 1851 marca el comienzo de la colaboración sanitaria internacional entre los gobiernos *

Segunda conferencia

Como solo tres países habían ratificado el convenio de 1851 el Gobierno de Francia convocó otra conferencia en París el año 1859. Los delegados diplomáticos de once países — Austria, Cerdeña, España, los Estados Pontificios, Francia, Gran Bretaña, Grecia, Portugal, Rusia, Toscana y Turquía — recogieron en un proyecto de convenio los principios que habían inspirado el de 1851. Una vez más pidió Gran Bretaña que se redujeran las restricciones. Grecia se puso al frente de los partidarios de aplicar la cuarentena con todo rigor y Francia se situó en una posición intermedia.

La intranquilidad política de Europa y las divergencias de criterio sobre la base misma del convenio fueron las razones principales del fracaso.

Tercera conferencia

La tercera conferencia sanitaria internacional se reunió con motivo de la cuarta epidemia de cólera que desde la India habían traído a Egipto los peregrinos en 1865 y que luego pasó a Europa. De nada había servido la cuarentena, a pesar de que se trataba de una enfermedad transmitida por vía marítima. La necesidad de coordinar los estudios sobre el cólera y de encontrar los medios de contener su propagación decidió la convocación de la conferencia que se inauguró en Constantinopla el 13 de febrero de 1866 y que duró siete meses.

Concurrieron 16 países cuyos delegados examinaron 1) el origen del cólera, 2) su transmisión y propagación, 3) las medidas preventivas que procedía aplicar — higiene, cuarentena, desinfección y medidas especiales en el caso de las peregrinaciones a La Meca y a

otros lugares — y 4) la ruta de propagación de la pandemia de 1865. Las conclusiones a que llegó la conferencia fueron muy precisas si se tiene en cuenta que se celebraba 17 años antes de que se descubriera el vibrión del cólera.

Cuarta conferencia

En 1874 se convocó en Viena la cuarta conferencia internacional a iniciativa de Rusia, preocupada entonces por la persistencia del cólera en su territorio y por la cuarentena de que con ese motivo era objeto su comercio marítimo. También contribuyó entonces a dar actualidad internacional al problema del cólera el aumento y aceleración del tránsito en el mar Rojo como efecto de la apertura del canal de Suez en 1869. La conferencia — a la que asistieron veintinueve Estados — confirmó las conclusiones a que se había llegado sobre el cólera en la reunión de Constantinopla. Se consideró inútil la cuarentena en tierra y en la navegación fluvial y para conciliar los distintos intereses en la cuarentena marítima se llegó a una transacción consistente en dejar la opción entre la inspección médica y la cuarentena, como medidas aplicables a los barcos.

Otro resultado positivo de la conferencia fue la redacción de un proyecto de convenio para instituir una comisión internacional permanente de epidemias. Aunque el convenio tuviera escaso efecto, la sola propuesta de crear esa comisión y de hacer algunas recomendaciones sobre sus actividades representaba ya un progreso considerable en la colaboración sanitaria internacional.

Quinta conferencia

Lo mismo que en Europa la cuarentena y otras cuestiones sanitarias eran también objeto de actividad internacional en las Américas. Probablemente fue en la Hispaniola el año 1519 cuando se aplicó la cuarentena

por primera vez en America Durante los siglos XVII y XVIII las colonias americanas impusieron frecuentemente esas restricciones, sobre todo contra la fiebre amarilla Entre los años 1810 y 1829 se establecieron servicios de cuarentena en los principales puertos sud americanos y a partir de 1855 en America del Norte La primera conferencia sobre cuarentena en las Americas se celebro en Montevideo el año 1873 con la participacion de Argentina Brasil y Uruguay

En America del Norte se habia introducido el colera en 1832 1848 1854 y 1866 La continua amenaza de esa enfermedad y las frecuentes invasiones de la fiebre amarilla hacian indispensable la cooperacion internacional El año 1880 una resolucion del Senado y de la Cámara de Representantes autorizo al Presidente de los Estados Unidos para convocar una conferencia sanitaria internacional

A esa conferencia que se celebro en Washington D C del 5 de enero al 1 de marzo de 1881 26 paises enviaron representantes que en su mayoria eran diplomáticos en vez de medicos y que se ocuparon entre otros problemas concretos de 1) establecer un sistema internacional eficaz y satisfactorio para notificar la existencia de enfermedades contagiosas e infecciosas y en particular el cólera y la fiebre amarilla y 2) instituir un sistema uniforme y satisfactorio de patentes de sanidad que indicaran con exactitud el estado sanitario del puerto de partida del barco en el momento de zarpar

Este ultimo tema fue muy discutido Los Estados Unidos de America proponian que los agentes consulares del pais de destino inspeccionaran los barcos antes de zarpar y entregaran la patente de sanidad la propuesta encontro fuerte oposicion porque algunos de los asistentes consideraron que ese sistema ponía en entredicho la reputacion de los servicios sanitarios locales y constituia un atentado contra la soberania nacional Se acepto una formula de transaccion en la que se autorizaba al consul del pais de destino a

sancionar las patentes de sanidad extendidas por el agente sanitario del pais de salida

Más importante fue la propuesta de establecer un sistema de intercambio de informaciones epidemiológicas en la que se recomendaba que cada pais publicara un boletín semanal que se permitiera mantener comunicaciones directas entre las autoridades sanitarias de los distintos paises y que se creara una organizacion internacional encargada de reunir informaciones sobre los brotes la propagación y la desaparicion del cólera la peste y la fiebre amarilla

En el curso de las sesiones de la conferencia que se ocupó sobre todo de fiebre amarilla el Dr Carlos Finlay informo acerca de los resultados de sus investigaciones y expuso por primera vez la hipótesis de que acaso existiera un agente exterior a la enfermedad y a sus victimas que sirviera de vehículo de la infeccion entre una persona enferma y otra sana

En la conferencia no se aprobó ningun convenio pero se examinaron muchas cuestiones importantes y no solo aumentó la comprension entre los paises participantes sino que se abrió camino al progreso

Sexta conferencia

• La historia de las primeras conferencias sanitarias internacionales es la de unos paises forzados a negociar por la presencia de un peligro comun pero completamente incapaces de llegar a un acuerdo por la limitación de los conocimientos científicos • En la segunda mitad del siglo XIX los trabajos de Koch Pasteur y otros empezaban de todas maneras a asentar la base científica que necesitaban aquellas conferencias El descubrimiento del vibrión del cólera (*Vibrio comma*) por Koch en 1884 hizo epoca y vino a confirmar las teorías de los partidarios del contagio

Pero a pesar de que en 1883 se habia declarado el cólera en Egipto y de que los conocimientos que se tenian sobre la enfermedad eran mucho más exactos los ingleses — atentos en parte a los intereses mercantiles y firmemente persuadidos de que las mejoras y las precauciones sanitarias eran el medio más eficaz de impedir la propagacion del cólera — segun protestando contra las restricciones de la cuarentena. Una vez más se hacia oportuno abrir un debate internacional que tratara de resolver algunas de las cuestiones mas apremiantes. En consecuencia el 20 de mayo de 1885 se convocó en Roma una conferencia patrocinada por el Gobierno de Italia.

Veintiocho países enviaron a 63 delegados entre los cuales habia 31 médicos. Las discusiones transcurrieron sin relieve hasta que se planteó el caso de la cuarentena de los barcos que pasaran por el canal de Suez. A pesar de la oposicion de Gran Bretaña y hasta cierto punto de Dinamarca y de los Estados Unidos de América que preferian la inspeccion medica la conferencia recomendó que se tuviera en observacion durante 24 horas a los barcos sanos y durante tres o seis dias de cuarentena a las personas sanas a bordo de barcos infestados. Tampoco se concertó un convenio en esta conferencia que se limitó a formular algunas recomendaciones sin sanción juridica que les diera verdadera autoridad.

Primeros convenios

Durante el ultimo decenio del siglo XIX se celebraron varias conferencias sanitarias internacionales en las que fue posible concertar algunos convenios restringidos.

En 1892 se reunieron en Viena los representantes de catorce Estados para deliberar sobre la transmision del cólera por via maritima sobre todo en relacion con las peregrinaciones a La Meca. Se firmó y ratificó un convenio que trataba principalmente del

canal de Suez y de las peregrinaciones. El sistema de proteccion limitada establecido en ese convenio siguió en vigor durante algun tiempo.

La octava conferencia sanitaria internacional celebrada en Dresde en 1893 reunió a los representantes de diecinueve países que concluyeron un convenio firmado por diez gobiernos en el que se estipulaban las medidas máximas y mínimas de cuarentena que habrian de aplicarse contra el cólera para proteger a los países europeos de epidemias como la que en 1892 se habia propagado hasta Francia desde Afganistan Persia y Rusia. En 1897 ese convenio habia sido ratificado por once países.

El año 1894 se celebró en Paris otra conferencia que se ocupó con más detalle de las medidas para el golfo Persico y las peregrinaciones a La Meca. Trece Estados firmaron un convenio que no llegó a entrar en vigor sobre todo porque no lo ratificó Turquía que era uno de los países más directamente interesados en su aplicacion.

En Venecia se convocó el año 1897 la decima conferencia sanitaria internacional que como muchas de las anteriores respondia a la amenaza de una epidemia en la India se habia declarado la peste que procedia al parecer de China. Dieciocho países firmaron un convenio sobre las medidas de cuarentena que procedia tomar con los barcos dentro y fuera de Europa sobre desinfeccion y sobre las correspondientes disposiciones administrativas. Es interesante recordar que se aceptó por unanimidad la obligacion de comunicar por telegrafo los primeros casos de peste. Aunque poco eficaz, aquel convenio fue tambien un paso notable hacia el acuerdo de las naciones en cuestiones sanitarias.

Resumen de las realizaciones del siglo XIX

Las conferencias del siglo XIX hicieron progresos lentos pero constantes y contribuyeron mucho a la evolucion de las medidas

por primera vez en America Durante los siglos XVII y XVIII las colonias americanas impusieron frecuentemente esas restricciones sobre todo contra la fiebre amarilla Entre los años 1810 y 1829 se establecieron servicios de cuarentena en los principales puertos sud americanos y, a partir de 1855 en America del Norte La primera conferencia sobre cuarentena en las Americas se celebro en Montevideo el año 1873 con la participacion de Argentina Brasil y Uruguay

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bación definitiva de la intervención de los roedores en la propagación de la peste obligaron a revisar el convenio de 1903. Reunieron en París el año 1912 los representantes — médicos y diplomáticos — de 41 países para efectuar la indispensable reforma. Las modificaciones más importantes se referían a la fiebre amarilla. Hubo acuerdo general para atenuar las disposiciones de la cuarentena. La Primera Guerra Mundial retrasó hasta 1920 la entrada en vigor del convenio que poco después era sustituido por el de 1926.

En 1924 dieciocho repúblicas americanas habían firmado el Código Sanitario Panamericano que estaba destinado al hemisferio occidental y se basaba sobre todo en los anteriores convenios sanitarios internacionales.

Después de la Primera Guerra Mundial el Office international d'Hygiène publique acometió la tarea de revisar el convenio de 1912 dando por resultado la firma en París del memorable Convenio Sanitario Internacional de 1926 ya citado en el que se añadieron el tífus y la viruela a las anteriores infecciones transmisibles.

El convenio de 1926 modificado en parte el año 1938 llevaba a la práctica los fines que se había propuesto el movimiento iniciado en el siglo XIX para llegar a conciliar las teorías médicas antagónicas y estas con las necesidades del movimiento internacional de viajeros y mercancías. Para los viajeros los intereses navieros y comerciales y los servicios sanitarios de los puertos; el convenio de 1926 vino a ser algo así como la carta fundamental.

El desarrollo de la aviación internacional determinó la firma del Convenio Sanitario Internacional de Navegación Aérea concertado en La Haya el año 1933 que adaptaba a las condiciones particulares de los viajes aéreos los mismos principios en que se había inspirado el convenio de 1926.

Este último y el de 1933 fueron modificados en Montreal el año 1944 por iniciativa de la Administración de Socorro y Rehabilitación de las Naciones Unidas (UNRRA). Las nuevas disposiciones entraron en vigor el 15 de enero de 1945 después de haber sido ratificadas en Washington D.C. por diecisiete Estados.

* * *

Cuando la OMS se encargó de las cuestiones de cuarentena internacional que más adelante se examinan (véase página 339) la situación en la materia era muy confusa y nada satisfactoria. Entre los países obligados por los primeros convenios no todos habían aceptado las modificaciones de 1944 ni los protocolos de 1946 que las completaron (véase anexo 2 página 361). Algunos de los países más interesados en los viajes marítimos y aéreos mantenían en vigor convenios anticuados o no habían suscrito ninguno. Muchas medidas de cuarentena eran improcedentes desde el punto de vista científico y ocasionaban además grave perturbación a los viajes y al comercio.

Un siglo entero había transcurrido desde la primera conferencia sanitaria cuando el Reglamento Sanitario Internacional aprobado en 1951 puso algún orden en aquel caos pero en el curso de los cien años anteriores se habían registrado ya muchos y muy notables progresos en la aplicación de la cuarentena, tales como el descubrimiento de la epidemiología moderna — que ha demostrado la complejidad de la propagación de las infecciones y en consecuencia, lo infundado de las anteriores teorías que consideraban posible contener una epidemia aislando a los enfermos declarados y a los «contactos» así como los barcos sospechosos — el reconocimiento de la razón que asistía a los particulares a las empresas navieras y a los propietarios de mercancías cuando protestaban contra las injerencias y restricciones arbitrarias y excesivas de que

legislativas y de la organización en materia de salud pública. Sirvieron en primer lugar, para que se aceptara el principio de que las deliberaciones internacionales eran un medio adecuado de examinar cuestiones tan discutidas como los efectos de la acción médica en el comercio entre los países. Sometieron, además, a la influencia saludable del debate público las prácticas arbitrarias y a menudo inmorales que se escudaban en las necesidades de la cuarentena. En tercer lugar, demostraron a los «doctrinarios», que defendían teorías como la del contagio o la de las miasmas las graves consecuencias que para muchos países tendría la aplicación de opiniones no comprobadas con lo que se aceleraron las investigaciones que pudieran dar bases racionales y científicas a las medidas necesarias. En cuarto lugar, se destacó la conveniencia de uniformar las prácticas de la cuarentena. Prepararon, en fin, los convenios internacionales que más tarde servirían para instituir las primeras organizaciones sanitarias internacionales.

CONFERENCIAS Y CONVENIOS DEL SIGLO XX

Una conferencia de los grandes países navieros, celebrada en Viena el año 1902, contribuyó decisivamente a la convocación de la primera conferencia sanitaria internacional del siglo XX, que se reunió en París del 10 de octubre al 3 de diciembre de 1903. En el curso de sus sesiones se concertó el Convenio Sanitario Internacional del mismo año que refundía los convenios de 1892, 1893, 1894 y 1897. Masters ha resumido así los puntos más salientes de aquel acuerdo:

Aquel convenio sustituyó la anarquía que hasta entonces había existido para combatir las epidemias por un sistema cooperativo que se basaba en dos importantes obligaciones contraídas por los Estados signatarios: 1) que cada uno de ellos notificara a los demás la aparición en su territorio de ciertas enfermedades transmisibles especificadas en el convenio y 2) que una vez hecha esa notificación todos los

demás se abstuvieran de imponer a un país atacado por la enfermedad medidas de defensa más rigurosas que las previstas en el convenio.

Además de esos principios que se extendían a todos los signatarios se establecieron otras disposiciones especiales para el canal de Suez y los países vecinos, destinadas a levantar una barrera que se opusiera al progreso de las epidemias en los puntos estratégicos del canal de Suez, el mar Rojo y el golfo Pérsico y cuya aplicación quedaba sometida a una administración internacional. El convenio de 1903 contenía además una reglamentación detallada de las peregrinaciones musulmanas.¹

Al mismo tiempo en las Américas se procuraba establecer reglamentos sanitarios generales de carácter regional e internacional. La primera conferencia internacional de los Estados americanos reunida en 1889-1890 y la segunda, celebrada en 1901-1902, habían determinado la creación de la Organización Sanitaria Panamericana (OSPA) y, en 1902, de la Oficina Sanitaria Panamericana (OSP). La Organización y la Oficina prepararon el Convenio Sanitario de Washington de 1905, que se inspiraba en el convenio de París.

En Europa se produjo el año 1907 otro acontecimiento capital. En virtud de un acuerdo firmado en Roma, se creaba en París la primera organización verdadera mente internacional dedicada a asuntos sanitarios internacionales y en particular, a la cuarentena: el Office international d'Hygiène publique. Por espacio de 40 años esa oficina desempeñó importantes funciones, sus atribuciones y deberes pasaron a ser parte del legado que la OMS recibió el año 1946 en la Conferencia Sanitaria Internacional de Nueva York.²

Los progresos de la bacteriología y la epidemiología y en particular, el descubrimiento de que una persona sana podía ser portadora del cólera así como la compro-

¹ Masters, R. D. (1947) *International Sanitary Conventions in the field of public health*. Washington: D.C. (Separata anticipada de un capítulo sobre salud pública que se publicará en el próximo *Manual of International Organization of Health* de la División de Derecho Internacional de la Fundación Carnegie para la Paz Internacional) Pág. 9.

² *Actes off. Org. mond. Santé. Off. R. C. 1172 Hith O. g. 1948*
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eran objeto so pretexto de cuarentena las grandes reformas sanitarias que han permitido reducir muy considerablemente el rigor de las enfermedades transmisibles, el reconocimiento de que la investigacion científica

ha de servir de guia a la accion internacional en la adopcion de medidas de cuarentena y, en fin la buena disposicion reciproca para poder debatir en una conferencia internacional las dificultades entre los paises

EVOLUCION E IMPORTANCIA ACTUAL DE LAS ENFERMEDADES CUARENTENABLES

Las denominadas enfermedades cuarentenables son el colera la peste el tifus exantemático, la fiebre recurrente la viruela y la fiebre amarilla. A ellas se deben las grandes plagas de la historia y contra ellas se dirigen principalmente las medidas de cuarentena, previstas en los antiguos convenios sanitarios y en el vigente Reglamento Sanitario Internacional. Hasta comienzos del presente siglo no existian medios eficaces para combatir esas enfermedades que sembraban la muerte y la desolacion por todos los continentes y cuyas manifestaciones pandemicas disputaban a las guerras el macabro horror de dar a la historia sus capitulos más espeluznantes. La peste de Justiniano la peste negra del siglo XIV la gran peste europea del XVII las pandemias de colera del XIX las epidemias de tifus y fiebre recurrente — secuela de numerosas guerras y epocas de hambre — y los frecuentes brotes de viruela registrados en la mayoria de los paises han esparcido por doquier el espanto y la destruccion.

Las enfermedades cuarentenables no son sin embargo, las unicas que han acarreado muertes y sufrimientos sin numero. Las pandemias de gripe por ejemplo han igualado — e incluso superado en gravedad — a esas dolencias y algunas infecciones como la escarlatina el sarampion el dengue el

paludismo la fiebre tifoidea y la tos ferina han tenido a menudo efectos catastróficos. Pero ninguna iguala, por la continuidad de su accion destructiva a las enfermedades cuarentenables que durante largo tiempo han atravesado fronteras y amenazado a la humanidad. Ellas son las que han movido a los gobiernos y a las autoridades sanitarias de comun acuerdo a levantar barreras que detengan su propagacion la amenaza que hacian pesar sobre el comercio sobre las peregrinaciones sobre los ejercitos y en general sobre todos los movimientos de poblacion dio origen a una accion internacional concertada contra las enfermedades mismas y contra todos los artefactos capaces de transportarlas de un lugar a otro desde las carretas de las caravanas terrestres y los navios transoceánicos hasta las modernas aeronaves intercontinentales.

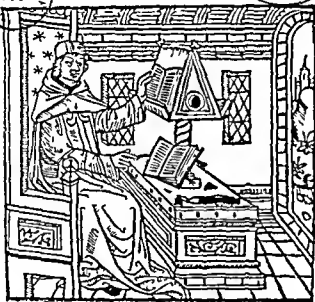
Antes de referirnos a la entrada en vigor del Reglamento Sanitario Internacional y a la aplicacion de sus disposiciones vamos a exponer brevemente la evolucion e importancia actual de las distintas enfermedades cuarentenables.

EL COLERA

El cólera que durante varios siglos fue con toda certeza endémico en la India y probablemente en China no aparece en Occidente hasta el siglo XIX. Las pandemias de aquella

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epoca fueron importantes no sólo por los irreparables daños que causaron en numerosos países sino también por la influencia directa que tuvieron sobre las teorías del contagio y de la infección y por el impulso que como ya se ha indicado, dieron a la colaboración sanitaria internacional

Como dice Pollitzer «para exponer en pocas palabras la distribución geográfica del cólera en todo el mundo es mucho más fácil citar las raras zonas que se han salvado de sus estragos que enumerar todos los países donde se ha registrado la presencia de la enfermedad»¹ Nunca ha arraigado el cólera en las latitudes extremas ni cosa curiosa, ha llegado a ser una infección habitual en los puertos de África del Sur donde sin embargo se introdujo Tampoco logró echar raíces en casi ninguna de las islas del Pacífico ni en los países ribereños de ese océano

La primera pandemia de cólera comenzó en 1817 y en el espacio de seis o siete años se extendió a Ceilán Birmania, Tailandia, el archipiélago de Indonesia China Japón el golfo Pérsico la zona del Caspio los países de Levante y probablemente a Zanzíbar y a la isla Mauricio Parece que la segunda pandemia tuvo su origen en una epidemia declarada en Bengala en 1826 y que de 1829 a 1836 se extendió por el Irán y el mar Caspio a Rusia a la mayor parte de Europa al Norte de África y de allí a las Américas La propagación de la enfermedad hacia Oriente fue seguida de 1840 a 1846 por observadores en Birmania las islas Filipinas y China En Europa y en América la infección persistió durante el quinto decenio del siglo registrándose durante 1849 una elevada incidencia en ambos continentes

Mucho más difícil es determinar el foco inicial y las etapas sucesivas de la tercera pandemia que iniciada en 1852 se extendió por Europa América del Norte el Mediterráneo oriental el norte de África Indo-

nesia China y Japón manteniéndose en algunas zonas hasta el final del decenio

La cuarta pandemia que duró desde 1863 hasta 1873 se caracterizó por sus estragos entre los peregrinos de La Meca De ahí proviene el temor — que no se ha disipado hasta hace muy poco tiempo — de que esa peregrinación sirva otra vez de vehículo a la propagación de la enfermedad (véase pág. 349) La pandemia volvió a extenderse por Europa y por América e invadió las costas occidentales y orientales de África En el continente americano sufrieron sus efectos los países de Centro y Sudamérica y se propagó, asimismo a la mayor parte de Asia

Circunstancia notable de la quinta pandemia que comenzó en 1881 fueron las medidas adoptadas en Gran Bretaña y en Norteamérica que lograron reducir o contrarrestar sus efectos No obstante se registraron epidemias graves en Rusia Alemania Francia España Brasil Argentina Uruguay China Japón Filipinas y la antigua Persia

La sexta pandemia consistió en una serie de brotes escalonados entre 1899 y principios del segundo cuarto del siglo actual Aparte las acostumbradas epidemias de gran violencia registradas en la India foco inicial de la infección la enfermedad hizo estragos en Rusia en los países balcánicos en los de origen y tránsito de las peregrinaciones a La Meca y en la mayoría de los comprendidos en las regiones del Asia Sudoriental y el Pacífico Septentrional

En el primer cuarto del siglo XX se ha producido un cambio decisivo en la distribución mundial del cólera y en su propagación Europa América África (excepto Egipto) Japón (salvo un brote de corta duración registrado en 1946) y Australasia han quedado completamente libres de la enfermedad No cabe ya duda de que las epidemias de cólera tienen su origen en un reducido número de focos situados en la India y en el Pakistán

¹ Pollitzer R. (1954) *Bull. Org. m. d. Sanit. B. II* W. H. O. 4 1

Situación actual

Para exponer con mayor claridad la actual situación del problema del cólera es preciso remontarse a la terminación de la Segunda Guerra Mundial. Salvo en una ocasión la enfermedad no ha traspuesto desde entonces los límites de Asia e incluso en ese continente la extensión de los brotes originados en los focos endémicos se ha reducido considerablemente. En el curso de los últimos años sólo se han registrado fuera de esos focos algunos brotes dispersos de carácter excepcional (En Japón en 1946, en Egipto y Siria en 1947 y en Indochina de 1947 a 1952).²

Desde el final de la guerra han surgido importantes epidemias de cólera en la India, Pakistán, Birmania, Tailandia, Indochina y

China (véase el cuadro 1). Según Swaroop y Pollitzer² el 98% de las defunciones causadas por la enfermedad entre 1948 y 1952 se registraron en la India y en Pakistán y si se suman las correspondientes a Birmania la proporción asciende al 99.5%. Se consideran como focos verdaderamente endémicos de cólera los de Bengala Oriental y Occidental y los del delta del Ganges y el Brahmaputra. En los deltas de otros ríos como el Mahanadi (Estado de Orissa), el Cauvery, el Kistna y el Godavari (Estado de Madrás) y posiblemente en el del Irawadi (Birmania) existen focos de menor importancia. Según los autores citados los datos obtenidos en fecha reciente confirman la antigua opinión de que no existen verdaderos focos endémicos en los deltas de los ríos de China a pesar de las terribles epidemias registradas en sus inundaciones y de la persistencia de la enfermedad.

CUADRO 1. DEFUNCIONES POR CÓLERA REGISTRADAS EN DIVERSOS PAÍSES DE 1945 A 1954†

País o territorio	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
India y Pakistán	278 428	122 817‡	131 758	194 920	95 410	110 929	6 550	9 146	133 630	18 800
Birmania	6290	2 482	500	33	145	2 448	46.5	238	9	19
China	5	31	0	0	2	0	0	0	11	0
Tailandia	3 954	4 460	2 036	15	1	0	0	0	0	0
Indochina	—	—	714	540	21	8	61	17	72	4
Chile	5 201	15 460	291	3	0	0	—	—	—	—
Sri Lanka	143	33	—	—	—	—	—	—	—	—
Hong Kong	—	248	0	0	0	0	0	0	0	0
Tailandia	—	2 210	0	0	0	0	0	0	0	0
Federación Filipinas	—	182	0	0	0	0	0	0	0	0
Japón	0	28	0	0	0	0	0	0	0	0
Egipto	0	0	20 462	10	0	0	0	0	0	0
Siria	0	0	0	18	0	0	0	0	0	0

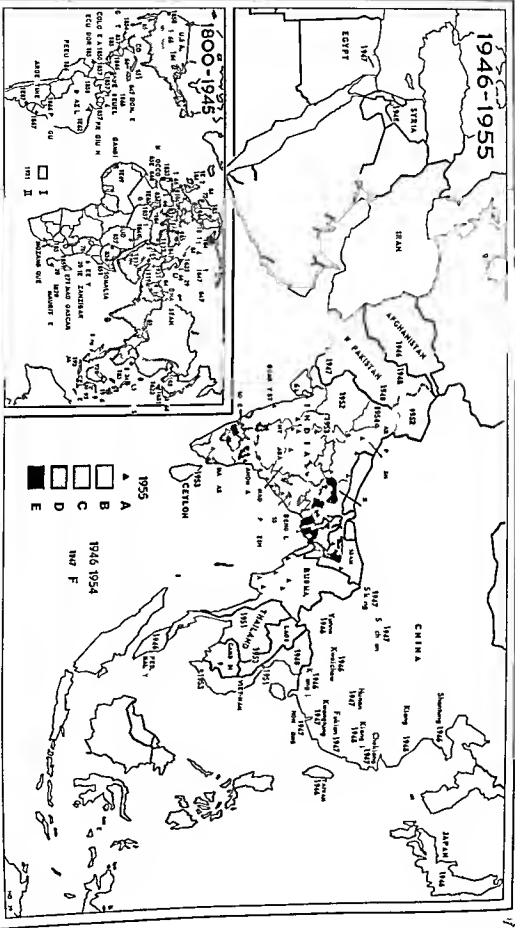
Oto disponible sobre otros países. No se registraron defunciones por cólera entre 1945 y 1954 en Japón (Indo-Asia), URSS, Irán e Irak entre 1945 y 1954, Filipinas y entre 1947 y 1954 en Singapur.

† Adaptación de los trabajos de Swaroop S. & Pollitzer R. (1955) *Bull. Org. mond. Sa. H. B. H. W. H. H. O. G.* 12, 311-358.

— = No se dispone de datos.

‡ Cifras preliminares.

§ Sin contar las registradas en Bengala Oriental.



Mapa principal Distribución por distritos basada en notificaciones provisionales de casos ocurridos en 1955

Mapa interior

I — Zonas afectadas durante el periodo 1800 1911
II — Fecha del último caso registrado durante el periodo 1800 1946

Al este de la India y Pakistán el colera hace apariciones anuales en Birmania y en Tailandia pero su extensión disminuye sensiblemente de un año a otro en este último país donde hubo de 1943 a 1947 una epidemia de grandes proporciones. En China se presentó un brote generalizado en 1946 y en Indochina se registraron varios casos anuales de 1945 a 1954.

El problema del colera ha perdido tanta importancia en los últimos años que solo puede decirse que exista en los focos endémicos de la India y Pakistán y en las zonas contiguas a los focos. Si se exceptúan algunos brotes excepcionales que quizá se expliquen por las circunstancias anormales de la posguerra la enfermedad ha desaparecido prácticamente del resto del mundo y se bate en retirada incluso en los lugares tradicionales de sus manifestaciones endémicas (véase mapa 1). Las cifras de mortalidad por colera registradas en la India y Pakistán de 1950 a 1954 fueron en efecto las siguientes: en 1950 110 929 defunciones en 1951 62 550 en 1952 59 156 en 1953 133 830 y en 1954 alrededor de 18 800. En total unas 385 000 defunciones que representan un sensible progreso si se las compara con las 824 000 notificadas en el quinquenio anterior (1945-1950) y corresponden a la mortalidad más baja registrada hasta la fecha por la enfermedad.

El colera y los viajes internacionales

Desde que terminó la Segunda Guerra Mundial los viajes internacionales apenas han influido en la propagación del colera. Ninguna de las hipótesis formuladas para explicar la epidemia de 1947 en Egipto — entre ellas la que la atribuye a un caso importado de la India — permitió determinar su origen con certeza. Tampoco ha podido establecerse sin lugar a dudas la procedencia de los brotes registrados en otros países donde la enfermedad no tiene carácter endémico.

Entre 1950 y 1955 fueron solo trece los buques que a su arribada notificaron casos de colera a bordo y ninguno de esos casos dio lugar a contagio. Los trece barcos en cuestión habían llegado a puertos de la India, y procedían de otros del mismo país o de países adyacentes. Fuera de los indicados no se señalaron casos de colera en ningún otro puerto del mundo lo que supone una gran mejora respecto de años anteriores.

La última epidemia ocurrida en La Meca duro de 1910 a 1912. Desde 1913 no se han registrado casos de colera entre los peregrinos salvo en 1930 año en que se consideró que hubo peregrinos infectados porque en el mes de mayo un viajero que regresaba de La Meca presentó síntomas de la enfermedad al desembarcar en Masaua (Eritrea). Ello no obstante en el Hedjaz no se declaró ningún caso de colera ni defunción alguna causada por esa dolencia.

• • •

La notable remisión del colera como problema mundial obedece sin duda al mejoramiento que se advierte por doquier de las condiciones sanitarias de los países y del transporte internacional. Es ya muy improbable que el colera introducido en un país consiga arraigar en él y aun más raro que la enfermedad se propague por tierra o por mar con la facilidad de antaño.

LA PESTE

El primer testimonio histórico concreto que tenemos de la peste es la descripción de la pandemia ocurrida en el siglo VI después de J. C. durante el reinado del emperador Justiniano. Sus efectos en el mundo conocido a la sazón fueron tan terribles que se la ha calificado como «una de las mayores calamidades que jamás se han abatido sobre la humanidad».

Swaroop & Pollitzer (1955) p. 11

Pollitzer R. (1954) La peste. *Genève (Org. int. on mondial de la Santé Série de Monographies N. 2.) Plaque Genève (World H. & Organization Monographs Series N. 2.)*, pág. 1

Véase C. d. Org. mund. 5 jul. 1947 I 11 169

La siguiente catastrofe de grandes proporciones causada por la enfermedad fue la famosa peste negra del siglo XIV, una verdadera pandemia en toda la extension de la palabra. Los historiadores de la época tanto los orientales como los occidentales, describen la espantosa mortandad que la enfermedad sembró por doquier durante largos años. En Europa y Asia las victimas se contaron por millones y los efectos de la pandemia fueron tan perniciosos que estuvieron a punto de terminar con toda sociedad organizada. Se han realizado detenidos estudios sobre los aspectos epidemiológicos de ese brote de peste — que duró desde el siglo XIV hasta el siglo XVI — y en particular sobre las ratas los movimientos de población y el tráfico mercantil con la esperanza de determinar las causas que motivaron la ulterior desaparición de la enfermedad en muchos países. Hacia 1840 por ejemplo la peste había desaparecido de Europa fenómeno que todavía no ha podido explicarse de modo satisfactorio aun cuando sea indiscutible que influyeron en él los cambios sobrevenidos en las especies de ratas en las condiciones de alojamiento de la población en las instalaciones portuarias en las rutas comerciales etc.

La pandemia declarada en la segunda mitad del siglo XIX duró hasta los primeros años del actual y tuvo al parecer su origen en las altiplanicies del Asia sudoriental mas concretamente en Yunan. Desde esa zona la enfermedad se extendió a las ciudades de Canton y Hong Kong y de allí los buques la transportaron a numerosos países. La propagación alcanzada por esa pandemia determinó su actual distribución geográfica y planteó algunos problemas todavía pendientes en relación con la cuarentena internacional.

Situación actual

Conviene examinar ante todo las vicisitudes de la distribución de la peste por continentes en el curso de los cinco años últimos

Asia

Se han registrado con frecuencia brotes epidémicos en las zonas costeras de China y en el interior del país. En 1910 y en 1920 hubo en Manchuria dos graves epidemias de peste neumónica y por la misma época se señalaron en distintas ocasiones otros brotes en las provincias de Kuangtung Fukien Chekiang Kiangsi Shantung Anwei Shansi y Yunan. Pollitzer afirma a ese respecto que «la peste transmitida por ratas está firmemente arraigada en varias zonas del sur y en el noreste de China mientras que en Yunan las manifestaciones epidémicas han sido constantes en los últimos tiempos».

En Birmania Indochina Tailandia Indonesia e India existen zonas donde la enfermedad tiene carácter endémico y en las que todos los años se señalan brotes importantes. La incidencia más elevada se ha registrado en Java y la India pero sobre todo en este último país donde la peste ha sido una de las principales causas de mortalidad humana desde principios de siglo aunque las defunciones debidas a la enfermedad acusan una constante disminución en los últimos años como puede verse por las cifras siguientes.

Años	Defunciones por año	
	Total	Promedio anual
1919—1928	1 702 718	170 272
1929—1938	422 880	42 288
1939—1948	217 970	21 797
1949—1953	23 142	4 628

Esa disminución de la peste humana que no es ni mucho menos indicio seguro de una reducción proporcional de los reservorios zoonóticos de la enfermedad en los roedores es un fenómeno común a otros países de Asia como Birmania Indochina e Indonesia donde la mortalidad por peste ha disminuido considerablemente en años recientes. Durante el último quinquenio (1951—1955) sólo se han registrado en Birmania 3020 casos en focos

*Examen de ratas para ver si
son portadoras de germen
de la peste*



(Con la torzaca del Servicio de
Salud Pública de los Estados
Unidos de América)

pequeños y dispersos. En Camboya, donde la peste humana parece haber tenido carácter endémico desde 1907 en la zona de Phnom Penh y en Viet Nam, donde por esa misma época la enfermedad arraigó en tres zonas (la de Saigón, la faja costera central y la región del Alto Donnai), sólo se han registrado 186 casos en los cinco años últimos. Durante el mismo período se señalaron en Tailandia 14 casos.

En 1910 la peste se introdujo en Java por el puerto de Surabaya y se extendió al interior de la isla originando gran número de casos (aproximadamente 10 000 al año durante el segundo decenio del siglo). En el último quinquenio esa cifra ha disminuido a menos de 2000 casos anuales.

En el oeste de Asia hay otro foco de peste que de cuando en cuando causa brotes epidémicos de pequeñas proporciones como los

señalados en varias ocasiones durante los últimos años en Irán Israel, Irak Turquía Siria y Arabia Saudita. Todavía no se sabe con certeza si alguno de esos brotes se debe a la infección de roedores salvajes locales o de roedores domésticos importados.

Tal es a grandes rasgos la evolución seguida por la peste humana en Asia en el curso de los últimos años. Es evidente que la enfermedad está en retirada, tanto en lo que se refiere a sus índices de mortalidad y morbilidad, como a su extensión geográfica. Conviene tener presente, sin embargo, que la peste humana no es sino una manifestación relativamente secundaria de un fenómeno biológico mucho más complejo y de proporciones mucho mayores: la peste de los roedores. Urge por tanto investigar la ecología de los roedores de Asia, la correlación que existe entre esos mamíferos y las pulgas y por último la epidemiología de los brotes humanos de carácter local.

Resultaría prolijo hacer aquí una enumeración detallada de los focos de peste existentes entre los roedores salvajes de Asia, verdadero reservorio permanente de la enfermedad. Baste decir que el más conocido es el que abarca Manchuria, Mongolia, Turkestán y la región de Transbaikalia, donde la marmota actúa como huésped de la infección y que existen focos aislados en Turkestán, la región transcasiana, el Kurdistán iraní y probablemente en la frontera del Yemen y la Arabia Saudita. Hay motivos fundados para suponer que esos focos no forman en realidad más que uno solo que se extiende desde el Asia central hasta la península arábiga. Los huéspedes salvajes de la infección en esas regiones pertenecen a la familia de las ardillas o a la de los jerbos.

La persistencia de la infección en otras zonas de Asia y, en particular en la península indostánica, no puede atribuirse de manera tan inequívoca a los roedores salvajes sino más bien, a los comensales del hombre (roedores domésticos). Interesa por tanto pro-

seguir las investigaciones ecológicas y epidemiológicas sobre esta cuestión.

Africa

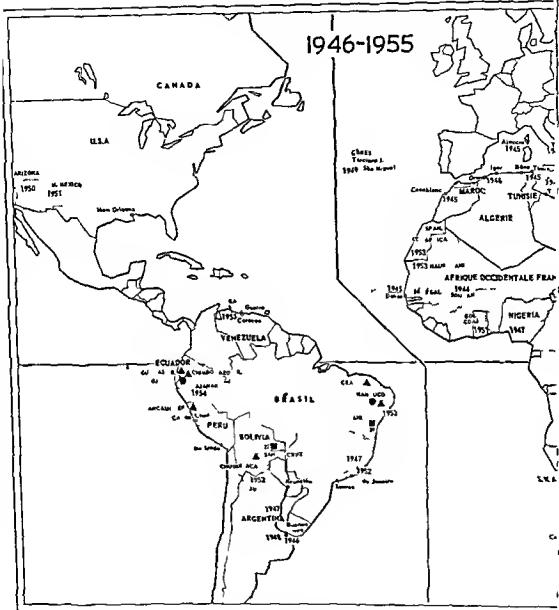
En lo que va de siglo se han registrado varios brotes epidémicos de peste en el norte de África (Argelia, Egipto, Marruecos, Tunicia y Túnez). Los primeros ocurrieron apenas comenzado el siglo en los puertos de Suez, Port Said, Túnez, Philippeville y Argel. Las epidemias graves registradas en zonas de mayor extensión tales como el Alto Egipto (especialmente en Asiut), varios distritos de Túnez, algunos departamentos de Argelia y el interior de Marruecos pusieron de manifiesto la existencia de focos infecciosos durante muchos años tanto en las zonas urbanas como en las rurales. Desde 1950 sin embargo no se ha notificado la presencia de peste humana en la región, excepción hecha de algunos casos ocurridos en Argelia.

En lo que se refiere a la peste de los roedores en esa parte del norte de África, la situación es bastante confusa. Si bien parece demostrada la intervención de los roedores domésticos en la mayoría de los brotes ocurridos en puertos y en zonas urbanas, la de los roedores salvajes no se ha precisado todavía, aun cuando no deja de ser significativo que varias especies existentes en la región sean susceptibles a la enfermedad. Urge pues emprender investigaciones ecológicas y epidemiológicas para determinar las circunstancias locales de la propagación de la peste.

Estudios de ese género se han llevado ya a cabo en otras tres zonas de África: a saber el África occidental, los territorios orientales del África central y África del Sur.

Aunque de 1943 a 1945 se notificaron varios casos de peste en Senegal, no han vuelto a registrarse en la región infecciones humanas si se exceptúan algunos casos señalados en Mauritania (África Occidental Francesa) y en el África Occidental Espa-

MAPA 2. PESTE DISTRIBUCION GEOGRAFICA EN 1955 Y FECHAS DE



1955 Casos notificados oficialmente

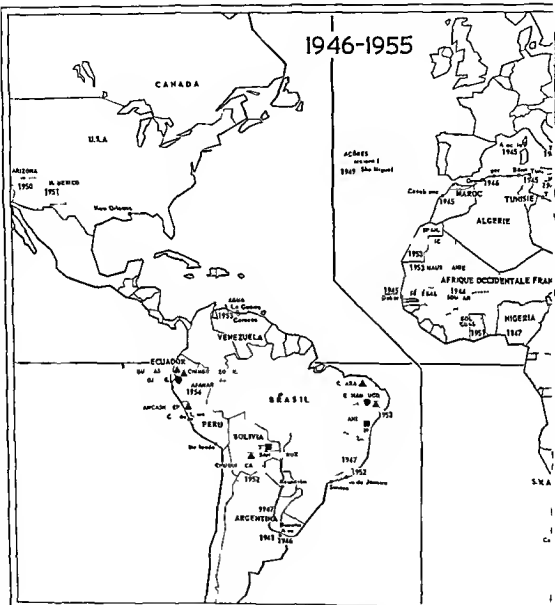
A = 1 caso

B = 2 19 casos

C = 70 y más casos

1946-1954 D

MAPA 2 PESTE DISTRIBUCION GEOGRAFICA EN 1955 Y FECHAS DE



1955 Casos notificados oficialmente

$$\mathbf{A} = \mathbf{I} \text{ caso}$$

B = 2 19 euros

$C = 10$ y más calor

1946-1954 D 1

nola Los brotes ocurridos en estas regiones se han atribuido a la doble intervencion de los roedores domesticos y los salvajes

Desde que comenzo el presente siglo se han observado casos de peste humana en los territorios orientales del Africa central particularmente en Uganda Los caso registrados en los diez años ultimos (1946-1955) se distribuyen asi

	Años de as
Congo Belga	300
Uganda	45
Kenya	216
Tanganyika	1194

Sin embargo en los dos ultimos años la incidencia de la peste en esos países ha disminuido considerablemente

El problema de los roedores no está del todo resuelto pero se sabe que tanto los domesticos como los salvajes intervienen en la propagacion de la enfermedad

En Africa del Sur se declararon a principios de siglo algunos brotes epidemicos en unas cuantas ciudades importantes pero la exten-sión de los focos ha ido disminuyendo desde entonces y en la actualidad casi no se registran mas que casos aislados en zonas rurales Durante el ultimo quinquenio (1951-1955) se notificaron en el país unos cien casos de peste humana

Por lo que respecta a los roedores la situacion no ofrece lugar a dudas la peste es enzootica en las especies salvajes cuando concurren determinadas condiciones ecologicas Las investigaciones sobre ecologia y epidemiologia realizadas en la Union Sud africana son bastante completas y sobre contribuir a un notable mejoramiento de los metodos de lucha utilizados contra los roedores en el país han facilitado el estudio científico de los problemas que plantea la peste humana transmitida por los roedores

El numero de casos de peste registrados en la poblacion de Madagascar fue relativamente elevado hasta 196 pero desde ese año ha disminuido mucho En 1953 se noti-

caron unos 140 casos 20 al año siguiente y 15 en 1955

Al igual que en Asia los casos de peste humana han disminuido en Africa desde comienzos de siglo Las investigaciones científicas han puesto de manifiesto la importancia de los roedores salvajes en la propagacion de la enfermedad en el continente africano pero mientras no se conozcan mas a fondo las condiciones ecologicas sera imposible determinar exactamente la epidemiologia de la peste en muchas regiones de Africa

Europa

Las raras manifestaciones de peste en Europa durante los ultimos años han tenido por escenario una localidad de Italia otra de Corcega Malta y las Azores No se conocen datos acerca de los focos enzooticos existentes en las zonas rurales del Bajo Volga que manifestaron gran actividad en 1942 durante la invasion de Rusia por los alemanes Desde 1949 no se ha senalado en Europa ningun caso de peste

Las Americas

Desde hace treinta años no se ha registrado en los Estados Unidos ningun caso de peste humana transmitida por roedores domesticos pero estudios muy detenidos han demostrado que la infeccion de los roedores salvajes (principalmente las ardillas) se extiende a quince Estados del oeste del país y se transmite de vez en cuando a las personas ocasionando los casos humanos que con carácter esporadico se han senalado en los ultimos años Las unicas manifestaciones de peste observadas en el Canada son las infecciones descubiertas entre los roedores salvajes de las provincias de Alberta y Saskatchewan

America del Sur conoció epidemias de peste en los primeros años del siglo La infeccion acabo por extenderse a gran

numero de puertos y a otras muchas poblaciones, persistiendo en Ecuador, Peru el centro y el norte de Argentina, Bolivia el este del Brasil y Venezuela. Hay motivos para suponer que, como ocurre en Asia y en Africa existen verdaderos focos enzooticos en algunas zonas de los mencionados paises.

En los diez años ultimos (1946-1955) se notificaron los siguientes casos de peste humana *

	Numero de casos
Argentina	30
Bolivia	143
Brasil	1080
Ecuador	410
Peru	748
Venezuela	23

La mayoría de esas cifras son muy inferiores a las registradas en los primeros años del siglo

* * *

La conclusión que se desprende de este examen general de la distribución de la peste es bastante optimista máxime cuando se tiene en cuenta que la propagación internacional de esa dolencia parece haberse interrumpido desde hace algunos años (sólo se tiene noticia de un caso reciente). La frecuencia de los casos humanos ha disminuido muchísimo sobre todo en el continente asiático donde los efectos de la peste eran antes verdaderamente devastadores. El mejoramiento de las condiciones generales de higiene y saneamiento, la existencia de mejores medios de transporte y de servicios sanitarios más eficaces son factores que han contribuido a ese descenso, mientras que los modernos productos insecticidas y rodenticidas han reducido el peligro de contagio que representan los roedores. Otro progreso alentador es la aparición de nuevos medios terapéuticos que permiten curar hasta las formas de la

infección que antes se consideraban mortales de necesidad como la peste neumónica.

Así y todo esos adelantos tan sensacionales y satisfactorios no resuelven por completo el problema. La peste no es más que una infección de los animales que a veces se extiende a los hombres y en casi ninguna región se conocen bien las características que la enfermedad presenta en los roedores salvajes, su extensión, su evolución y sus relaciones con la peste humana. Es muy posible que cuando se disponga de más elementos de juicio cambien por completo las perspectivas ecológicas del problema y que las infecciones locales dejen de atribuirse con tanta frecuencia a invasiones geográficas y a importaciones de la enfermedad.

EL TIFUS EXANTEMÁTICO

Es esta otra enfermedad cuyas perspectivas epidemiológicas han cambiado radicalmente en el curso de los últimos años gracias a los esfuerzos realizados para combatirla por medios científicos. La calamitosa experiencia acumulada a lo largo de muchos siglos presentaba al tifus exantemático como compañero inseparable de la guerra, las épocas de hambre y otros desastres sociales. Nada tiene, pues, de extraño que durante la Segunda Guerra Mundial se temiera su aparición sin que por fortuna llegaran a confirmarse esos temores ni la enfermedad adquiriera proporciones desmesuradas pese a los graves trastornos sociales que en los últimos años del conflicto dejaron sentir sus efectos en países enteros. Aunque hubo brotes de mucha gravedad en Africa del norte, Yugoslavia y Corea ninguno de ellos llegó a desorganizar por completo la vida de las poblaciones atacadas. (No se conocen bien los problemas que la enfermedad planteó entonces en varios países de Europa oriental y en las zonas contiguas del continente asiático.)

Si no fue tan grave la amenaza del tifus exantemático durante la Segunda Guerra

Cifras basadas en parte (1946-1950) en los datos recibidos en la Sede de la OMS y en parte (1951-1953) en los publicados por la Oficina Sanitaria Panamericana. Oficina Regional de la Organización Mundial de la Salud (1956) en el *1 to me Annual del Director* 1955 Washington D.C. (Documentos Oficiales, N. 16) pág. 64.

CUADRO II CASOS DE TIFUS EXANTEMÁTICO Y DE DEFUNCIONES DEBIDAS A ESA ENFERMEDAD REGISTRADOS EN ALGUNOS PAISES DE 1946 A 1950 Y DE 1951 A 1955

		1946-1950	1951-1955			1946-1950	1951-1955
Argentina	C	1 818	293	Venezuela	C	862	259
Basutolandia	C	99	5		D	70	31
Belgica	C	1 324	770	Afganistán	C	—	1 497
	D	17	16	Islas (zonas urbanas)	C	1 319	443
Egipto	C	2 331	604		D	111	7
	D	530	48	Irak	C	729	228
Eritrea	C	2 374	56		D	—	7
	D	249	0	Japón	C	5 771	5
Etiopia	C	—	8 679		D	2 372	3
	D	—	16	Jordania	C	197	74
Líbano	C	1 086	461		D	16	4
Maruecos (Prot. F.)	C	4 001	29	Corea	C	4 868 ^b	33 977 ^c
Maruecos (Prot. Esp.)	C	131	34		D	298 ^b	6 768
Nigeria	C	109	21	Sri Lanka	C	227	9
Ruanda Urundi	C	—	752	Viet Nam	C	37	66
	D	—	14	Bulgaria	C	3 621 ^b	—
Tailandia	C	109	4		D	297 ^b	—
Túnez	C	1 966	1 4	Francia	C	37	10
Unión Soviética	C	2 643	335		D	33 ^a	—
	D	142	31	Grecia	C	309	7
Zanzibar	C	7	13		D	5	2
Bolivia	C	—	981	Hungría	C	2 206	—
	D	—	149		D	225	—
Chile	C	3 600	1 322	Irlanda	C	1	0
	D	196	79	Italia	C	73	0
Colombia	C	—	5 979	Países Bajos	C	3	0
	D	—	2 764 ^d	Polonia	C	4 816	—
Ecuador	C	1 754	2 180	Portugal	C	172	54
	D	—	90 ^d		D	31	10
Guatemala	C	1 476	97	Rumania	C	70 074 ^b	—
	D	734	40	Eslovenia	C	—3 ^a	63
México	C	9 089	4 291	Turquía	C	2 909	45
	D	5 494	2 390 ^d		D	216	32
Paraguay	C	8 731	2 155	Reino Unido	C	10	6
	D	6 84	2 343	Yugoslavia	C	4 901	2 218
					D	336	89

C = casos
— período de cuatro años
^d 1951-1954

D = defunciones
^b — período de tres años
1951-1952

— = no hay datos
— = tipo no especificado
— = se sustrae en parte entre los prisioneros liberados de campos de concentración de Alemania



Indios peruanos sometidos a pulverizaciones con DDT durante una campaña de lucha contra el tifus

Mundial y en los años siguientes no hay que achacarlo a menor virulencia de la enfermedad ni a condiciones inicialmente desfavorables para el piojo sino a las medidas sanitarias de carácter general aplicadas por las autoridades militares y civiles al empleo de métodos de pulverización contra los piojos que llegaron a ser particularmente eficaces con el descubrimiento del DDT y a la protección que seguramente confería la vacuna antitífica.

Durante la guerra e inmediatamente después de ella existían focos de tifus exantemático en las siguientes regiones:

- 1) África del norte en Argelia Marruecos Túnez y Egipto
- 2) Zona del Mediterráneo Oriental en Irán Irak Siria y Turquía
- 3) Europa en Polonia Yugoslavia Rumanía Hungría Bulgaria Grecia y más tarde en Italia y en los campos de prisioneros de Alemania

- 4) Unión Sudafricana
- 5) Corea y Japón
- 6) América Central y del Sur en Chile Guatemala México y Perú

Situación actual

En el cuadro II pueden apreciarse algunos de los cambios sobrevenidos durante los últimos años. El tifus exantemático está desapareciendo de Europa y tanto en el norte como en el sur de África su incidencia disminuye visiblemente con una sola excepción la de Etiopía donde se notificaron numerosos casos en el período 1951-1955. En algunos países de América central y meridional la enfermedad tuvo una incidencia bastante elevada hasta 1953. En la Región del Pacífico durante los últimos años no ha habido más que un brote de gravedad el de Corea motivado por las circunstancias de la guerra. En Europa oriental y en varios países asiáticos la situación continúa siendo incierta.

Son tan sencillos y tan eficaces los metodos que pueden emplearse en la actualidad para combatir directamente el tifus exantemático que no hay motivo alguno para que la enfermedad inspire temor por elemental que sea la organizacion de los servicios sanitarios. La aplicación de un insecticida de accion residual (DDT casi siempre) a la ropa operacion que suele efectuarse con un pulverizador «de pistola» permite despiojar en poco tiempo a grandes grupos de poblacion. Ese metodo empleado en Egipto y en Africa del norte^{9 10} durante la Segunda Guerra Mundial continua siendo el más eficaz para luchar contra el tifus exantemático e impedir su propagacion y la de otras enfermedades transmitidas por los piojos que gracias al mejoramiento de las condiciones de higiene publica y personal en casi todos los paises son cada vez más raras.

El tifus exantemático y los viajes internacionales

Desde que termino la Segunda Guerra Mundial no se ha senalado ningun brote de tifus exantemático que pueda atribuirse a los viajes internacionales y solo se han comunicado a la OMS cinco casos de infeccion a bordo de buques: uno de ellos en Colombo (Ceilán) en una embareacion que rendia viaje y otros cuatro en barcos llegados a puertos japoneses.

La enfermedad presenta cada vez menos importancia: no sólo en epocas de paz sino tambien durante los trastornos sociales que acompañan a las guerras. Ninguna sociedad que observe las normas de higiene más elementales y disponga de los servicios y los medios materiales tan sencillos como poco costosos que hacen falta para combatir a los piojos tiene por que temer ya la introduccion del tifus exantemático.

La fiebre recurrente transmitida por piojos probablemente la menos conocida de las enfermedades cuarentenables y que ni siquiera se mencionaba en los convenios sobre cuarentena anteriores al Reglamento Sanitario Internacional quedo incluida en este en 1951 a pesar de la escasa influencia que el trafico internacional tiene en su propagación.

Desde hace unos cuarenta años se sabe que la enfermedad existe en forma esporádica o epidemica en Europa oriental la URSS China la India y los paises del noroeste de Asia y el norte de Africa. En el continente africano — como en España en otros paises mediterráneos de Europa y en el noroeste de Asia — la presencia simultánea de una forma de la enfermedad transmitida por garrapatas dificulta a menudo el diagnostico diferencial de los casos esporádicos si no se recurre a las pruebas de laboratorio.

En Europa donde esas manifestaciones endémicas de la enfermedad venian sucediendo de manera intermitente en muchas zonas el ultimo brote importante se produjo a raíz de la Primera Guerra Mundial en Rusia Polonia y Rumania. En el periodo que media entre las dos conflagraciones mundiales la fiebre recurrente apareció en el Sudán Frances y se extendió a los territorios adyacentes^{11 12}.

Aparte una pequena epidemia declarada en los primeros meses de 1945 entre las guarniciones del sur de Francia (motivada por una infeccion procedente de Africa del norte) los unicos brotes de fiebre recurrente transmitida por piojos senalados en Europa son los ocurridos en Rumania y en Polonia durante la Segunda Guerra Mundial (No se dispone sin embargo de datos sobre la URSS). En Rumania y Polonia los brotes fueron de amplitud limitada y de proporciones insignificantes si se los compara con

9 Gear H S (1945) *S Af med J* 19 790
Soper F L et al (1943) *Arch J Fawour Alger* 23-24 183

R pp pid m me nel SDN L N Monthly epidemic 1940 9 481
St ark G (1945) *UNRRA epidem form Bull* 1 453

An Inquiry into the natural
History of a Disease known in
Gloucestershire ^{by} ~~under~~ the name
of the low-pox

The deviations of Man from the state
in which he was originally placed by Nature
seem to have proved to him a prolific
source of Diseases. From the love of
splendor, from the indulgences of luxury, &
from his fondness for amusement, he has
familiariz'd himself with a great number
of animals ~~which~~ ^{which} may not originally have
been intended for his associates. The Wolf,
des void of ~~its~~ ferocity is now yell'd in
the lady's lap * The Cat, the little Tyger of

* The late Mr John Hunter proved by experiments
that the Dog is the Wolf in a degenerated state

Facsimil del primer folio del manuscrito original que Edward Jenner presentó en 1797 proponiendo la introducción
de la vacunación. La propuesta fué rechazada por el Consejo de la Real Sociedad

Con autorización de H. K. Lewis Londres. (Crookshank E. M. 1889 History and pathology of vaccination Vol II)

las epidemias de otras enfermedades En el norte de Africa se registró una grave epidemia de 1943 a 1945 ¹³

Situación actual

Desde hace cinco años la fiebre recurrente que nunca ha constituido un problema grave para los viajes internacionales disminuye de manera notable

El último caso señalado en Europa data de 1949 En Asia occidental solo se han registrado casos esporádicos en 1955 por ejemplo se señalaron 27 en Irán 1 en Irak y 3 en Afganistán En la Región del Pacífico Occidental se han observado casos aislados en Viet Nam y en Camboja país este último donde hubo una epidemia de 4261 casos en 1950 En Corea se registraron 2738 casos en 1951 246 de ellos mortales pero sólo se señalaron 25 en 1953 En el norte de Africa apenas se han registrado más que casos esporádicos En Eritrea y Somalia se señalaron varios casos en 1955 El único brote de importancia señalado en fecha reciente es el de Etiopia donde hubo 7320 casos en 1953 5387 en 1954 y 2939 en 1955

En el norte de Africa Eritrea Etiopia Somalia y en ciertos territorios de Asia sobre todo en Afganistán Irak Irán Corea e Indochina la fiebre recurrente transmitida por piojos tiene carácter endémico

En los últimos años no se ha señalado ningún caso de contagio de la enfermedad debido a viajes internacionales

La fiebre recurrente presenta escasa importancia en la actualidad desde el punto de vista de la cuarentena internacional La investigación de su epidemiología la organización de servicios sanitarios eficaces en los países donde la enfermedad tiene carácter endémico y el descubrimiento de los insecticidas modernos han contribuido a restarle esa importancia No hay que suponer por

ello que la variedad transmitida por las garrapatas haya dejado de plantear serios problemas interiores en algunos territorios que todavía no han podido mejorar sus condiciones sanitarias

LA VIRUELA

Enfermedad universal por excelencia la viruela no ha respetado épocas regiones climas ni países y hasta hace poco sus desastrosos efectos para las poblaciones no vacunadas han constituido calamidades históricas Si bien es verdad que la vacunación ha modificado el curso de esta dolencia en muchos países hay otros donde todavía quedan focos de infección

La OMS ha realizado tres estudios de carácter general sobre las variaciones en la incidencia de la viruela durante los últimos años

No se registró ninguna pandemia grave en el período de ocho años (1940-1947) a que se refiere el primero de esos estudios ¹⁴ aun cuando hay que reconocer que los datos en que se basa el estudio son incompletos y variables La ausencia de pandemias es tanto más notable cuanto que la mayoría de esos años fueron de guerra

Si se exceptúan algunos brotes muy localizados y de origen generalmente exótico que se registraron en Italia Francia Grecia España y Portugal la enfermedad no se manifestó en Europa

En Asia, la península indostánica continuó siendo uno de los focos endémicos de la infección y registro las mayores cifras de morbilidad y mortalidad Se señaló asimismo la existencia de focos en Birmania Tailandia China e Indochina En Libano Siria Irak y Turquía hubo brotes de viruela

La infección varicelica persistió también en la mayor parte del continente africano aunque no pudo determinarse la proporción exacta que correspondía a los casos de

¹³ G. d. M. & Morg. n. M. T. (1947-48) Bull. Org. mond. Sanit. 1 75 Bull. W.H.O. 1 69

Fabre, J. (1948) Rep. epidem. démogr. Epidem. virol. St. ul. R. p. 1 68

viruela blanca y de viruela negra en las cifras totales de incidencia

No hubo casos de la enfermedad en Canadá ni en los Estados Unidos. Se señalaron en cambio brotes e incluso focos endémicos en algunos países americanos como México, Perú y Bolivia, y casos de viruela blanca en otros.

Los datos recogidos en el segundo estudio¹³ llegan hasta 1950 y, en algunos casos hasta 1951, faltan, sin embargo, las cifras correspondientes a los Miembros inactivos de la OMS.

Según esos datos, los países europeos, con la única excepción de Portugal, continuaban libres de la infección.

En Asia mejoró la situación, pero se confirmó que en este continente se hallaban los principales focos endémicos de la infección, prevaleciendo con este carácter en Afganistán, India, Indochina y Pakistán. Hubo en Ceilán repetidos brotes de origen exótico. Respecto a China, la Organización no pudo obtener ningún dato. En el Japón, la incidencia de la viruela quedó reducida a proporciones insignificantes en 1951. En los países del Mediterráneo oriental, donde se habían registrado brotes de 1940 a 1948, la incidencia de la enfermedad disminuyó a tal extremo en 1950 y 1951 que la infección podía considerarse prácticamente extinguida. El estudio resumía la situación de Asia en los siguientes términos:

Hay que suponer por tanto que la mayoría de las infecciones exóticas que se registran en otros países proceden del continente asiático. Existen en Asia muchas zonas de gran extensión donde la enfermedad tiene carácter endémico y abundan las epidemias. Aunque varios países del continente han demostrado que mientras se mantengan las actuales circunstancias puede evitarse la aparición de la enfermedad, la mayor parte de Asia sigue infectada de viruela.

Durante el período estudiado se registró una elevada incidencia en el África Occidental, Francia, Costa de Oro, Nigeria y el

Congo Belga, territorios todos donde hubo formas graves de la enfermedad. En el este y el sur abundaban en cambio las formas benignas, pero hubo también casos de viruela negra. Un dato alentador es la ausencia de infecciones en los puertos de África y en la mayoría de las ciudades importantes, pese a la persistencia manifiesta de focos endémicos en algunas regiones.

En América la situación no había cambiado desde que se efectuó el estudio anterior y los únicos casos registrados en América del Norte tenían carácter esporádico y se debían a infecciones introducidas en los Estados Unidos. Tampoco había variado la incidencia de la enfermedad en los países de América Central y del Sur, existían focos endémicos de viruela blanca en México y en la mayoría de los países sudamericanos, aunque en muchos de ellos se advertía ya una evidente mejoría.

Durante el decenio a que se refiere el estudio no hubo en gran parte de Oceanía (Australia, Nueva Zelanda, Nueva Guinea e islas del Pacífico meridional) ningún caso de viruela endémica y menos de veinte ocasionados por infecciones exóticas.

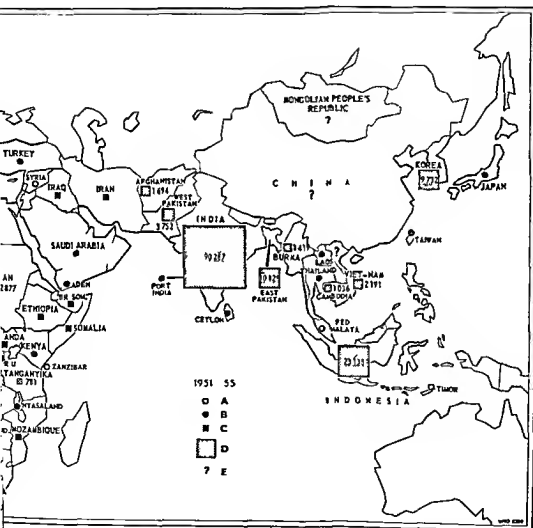
El tercer estudio¹⁴ ofrece interés particular porque al prepararlo se aplicó una escala de endemidad a los datos de autenticidad variable correspondientes al período de 1936-1950. Para obtener el índice se calculó el promedio de las tasas de morbilidad y mortalidad de la viruela correspondientes a los años de ese período en que la enfermedad había llegado a su más baja incidencia. En esas condiciones, la obtención de un índice de endemidad elevado denotaba la existencia de un nivel relativamente alto de infección variolosa en el país.

El estudio confirmó sin lugar a dudas que la India, el Pakistán, Birmania e Indochina son los países de mayor endemidad variolosa. En América se obtuvieron índices de

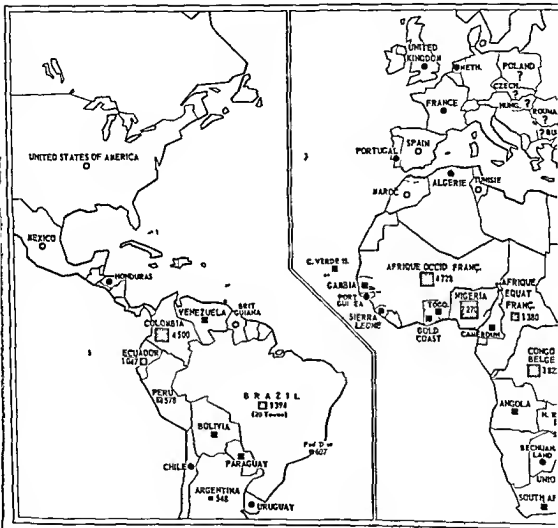
Murray L. H. (1951) *Rapp épidém. d'Asie. Epidem. v. ital. Statist. Rep.* 4: 398

Rapp épidém. d'Asie. Epidem. v. ital. Statist. Rep. 1951
627

OTIFICADOS OFICIALMENTE POR PAISES Y TERRITORIOS



MAPA 3 VIRUELA 1951 1955 PROMEDIO ANUAL DE CASO



A = 19 caso
 B = 10-99 cc
 C = 100-499
 D = 500 y m
 E = No se d

**CUADRO III PROMEDIO ANUAL DE CASOS
DE VIRUELA NOTIFICADOS DE 1946 A 1950
Y DE 1951 A 1955**

	1946-50	1951-55
Asia total	33 000	25 000
Algeria Egipto Libia Marruecos y Túnez	2 200	80
Américas total	20 000	9 000
Alaska Canadá USA	13	9
Asia total	139 000	144 000
India y Pakistán	100 000	104 000
Corea	7 000	10 000
Europa total	687	119
Portugal Rumanía Grecia España	625	76
Total promedio	193 000	178 000

Excluidos China y la URSS
Excluidas Albania, Bulgaria, Checoslovaquia, Hungría,
Polonia, Rumanía y la URSS

India y al Pakistán que representan el 28 % de la población total indicada. Otro 23% de los casos se registró también en países de Asia (excluidas China y la URSS) cuya población asciende al 21 % de la cifra total. Más de las cuatro quintas partes del total de casos se notificaron por tanto en países asiáticos (sin contar China y la URSS) cuya población representa aproximadamente la mitad de la población mundial.

En las regiones de África situadas al sur del Sahara cuya población supone el 10 % del total se registró poco más o menos un 14 % de los casos y en los países de América situados al sur de los Estados Unidos que representan otro 10 % de la población total se señaló aproximadamente un 5 % de los casos notificados.

Pueden considerarse en la actualidad libres de viruela los siguientes países: Australia, Nueva Zelanda y las islas del Pacífico meridional en Oceanía; los países del Mediterráneo oriental: Japón, Filipinas y la

endemias relativamente altas en Venezuela, Brasil, Colombia, Bolivia, Perú, Paraguay y México. Entre los países de África dieron tasas elevadas el Congo Belga, Nigeria, Tanganyika y la Unión Sudafricana. Conviene advertir que en los mencionados países de América y de África la interpretación de los datos resulta difícil por la gran incidencia de las formas benignas. El único país europeo donde se encontró una incidencia elevada de la enfermedad fue Portugal, aunque este país también quedó libre de viruela a fines de 1953.

No deja de presentar interés desde el punto de vista estadístico que los datos recibidos de la mayoría de los países distan mucho de ser satisfactorios a pesar de ser la viruela una de las enfermedades que ofrece menos dificultades de diagnóstico, notificación, etc. Son por ejemplo muy raros los casos en que pueden distinguirse entre los datos recibidos los correspondientes a las formas malignas de la enfermedad y a las benignas. Pese a estos inconvenientes de carácter estadístico, los tres estudios constituyen un útil exponente de la situación de los países donde la viruela continúa siendo un problema importante.

Situación actual

Los últimos datos disponibles sobre la incidencia de la enfermedad son a pesar de su carácter provisional muy alentadores (véase Cuadro III).

La disminución del número de casos es muy acentuada en América y en menor escala en África. A juzgar por los casos oficialmente notificados (incluidos los datos provisionales sobre 1955) la distribución de la enfermedad durante los cinco años últimos (1951-1955) es a grandes rasgos la siguiente:

Se registraron alrededor de 890 000 casos en noventa y seis países y territorios cuya población total asciende a unos 1550 millones de habitantes. El 58 % aproximadamente de todos los casos notificados corresponde a la

han notificado casos desde 1948 en los países del norte de África y en el Sudán pero al oeste del continente (África Occidental Francesa y Nigeria) la enfermedad abunda todavía mucho. En el este y el sur la incidencia de la viruela acusa en cambio una considerable disminución en los tres últimos años a pesar de la aparición de formas benignas. En 1955 no se registraron más que casos esporádicos en Mozambique, Rhodesia del Sur, Bechuanalandia y la Unión Sudafricana.

América

En los Estados Unidos donde no existe la viruela «clásica» y resulta difícil diagnosticar los casos de gravedad atenuada por la vacunación solo se retuvieron 4 de los 27 casos presuntos señalados en 1953 y en tres de ellos el diagnóstico no resultó confirmado por las conclusiones clínicas y epidemiológicas.

En México¹⁷ la viruela ha quedado prácticamente erradicada y de 27 casos notificados en 1951 se pasó a señalar uno solo entre 1952 y 1953. Ello no obstante en las cifras de mortalidad correspondientes a 1952 se atribuyeron a la viruela 31 defunciones. En la actualidad se está procurando mejorar el diagnóstico en los casos presuntos sobre todo entre los enfermos de varicela y variceloide.

En Centroamérica están libres de la enfermedad Costa Rica, El Salvador, Panamá y la Zona del Canal pero en Honduras y Guatemala todavía se atribuyen a la viruela algunas defunciones.

Las autoridades de Colombia han hecho obligatoria la vacunación. En 1953 se notificaron en el país 5526 casos entre ellos 408 mortales. En 1955 se señalaron 2985 casos.

En Venezuela se inició en 1949 un programa nacional de vacunación que duró

cuatro años y ha contribuido a reducir considerablemente la incidencia de la enfermedad. En 1955 se registraron dos casos.

En Ecuador la viruela tiene todavía carácter endémico. En 1955 se notificaron unos 1200 casos.

En Perú donde las manifestaciones más graves de la enfermedad han tenido carácter endémico se ha vacunado aproximadamente al 45% de la población en el curso de una campaña iniciada en 1950. El número de casos notificados oficialmente descendió de 1360 en 1952 a 136 en 1954. En 1955 no se registró ningún caso. En Bolivia existe todavía la viruela negra.

Durante la última epidemia declarada en Chile en 1950 contrajeron la enfermedad 3564 personas. En el curso de ese mismo año se vacunó a casi toda la población. En 1953 solo se señalaron siete casos todos ellos benignos y ninguno en 1954 y 1955.

Brasil sigue siendo la principal zona de endémicidad de la viruela atlántica de América del Sur. Según los datos correspondientes al Distrito Federal y a veinte capitales de estado el número de casos registrados en 1954 fue de 935 y de unos 1100 en 1955. En Paraguay se notificaron oficialmente 29 casos en 1955.

En Uruguay la vacunación es obligatoria y el país está prácticamente libre de viruela. En Argentina la enfermedad presenta por lo general carácter benigno abundando sobre todo en las provincias andinas. En 1950 se notificaron 4462 casos y 46 defunciones pero en 1954 solo se señalaron 252 casos y 43 en 1955.

La viruela y los viajes internacionales

La viruela sigue siendo la enfermedad que con más frecuencia se consigna en las declaraciones de barcos infectados. Conviene advertir sin embargo que no se dispone de cifras exactas sobre la incidencia relativa de las formas benignas ni de las malignas y que

Ofic. a S. E. P. m. e. r. c. Ofic. Reg. on. d. l. l.
Org. acción M. n. d. l. de la Sal. d. (19. 5) l. forme. Anual del
D. r. e. r. 19. W. h. g. D. C. (Doc. men. os. Ch. ales
N. 161 pag. 53)

Federación Malaya, en Asia Egipto, las zonas costeras del sur y las islas del Océano Índico en África casi todos los países de Europa Estados Unidos, Canadá, México (desde fines de 1951) y las islas del Caribe, en América

Aparte las principales zonas endémicas de la India y el Pakistán la infección ha continuado manifestándose en Afganistán Birmania Irak, Irán Tailandia, Laos e Indonesia en algunas zonas tropicales y subtropicales de África y en América Se desconoce la situación reinante en el territorio de los Miembros inactivos de la OMS así como en la China continental

Damos a continuación algunos detalles sobre la situación actual

Asia

La península indostánica integrada por la India y el Pakistán es en la actualidad el principal reservorio endémico de la viruela negra, que produce en esos países una elevada mortalidad La proporción de personas protegidas por vacunación o por infecciones anteriores es todavía insuficiente sobre todo en las zonas de gran densidad de población

El número de casos señalados en la India y en el Pakistán disminuyó a unos 88 000 en 1952 y a menos de 42 000 en 1953 (esta última cifra es la más baja registrada hasta la fecha) En 1954 se produjeron unos 49 000 casos El mejoramiento de la situación en los dos últimos años se debió principalmente a la baja incidencia registrada en las zonas tradicionalmente endémicas y en particular en Bengala (Oriental y Occidental) en Bihar y en Orissa Al oeste y al suroeste de esa zona el número de casos fue relativamente mayor

Las fluctuaciones estacionales siguen un ritmo regular y conocido la enfermedad alcanza su máxima incidencia en los meses de marzo y abril y la mínima en octubre época en que ha desaparecido de muchos distritos Entre diciembre y mayo se registra

una elevada incidencia en Calcuta Madrás Bombay y otros puertos de la India y del Pakistán Oriental y se observan casos de viruela a bordo de los barcos que navegan por el océano Índico

En Birmania la enfermedad suele alcanzar su mayor frecuencia en la zona costera y en el valle del bajo Irawadi

En Tailandia como en Birmania es muy frecuente que la infección vuelva a introducirse utilizando la vía marítima de preferencia a la terrestre Al este de Tailandia se señala la presencia continua de viruela en Camboya y en los deltas de los ríos que desembocan en las costas meridionales y septentrionales de Viet Nam en la región central de este país y en Laos sólo se observan focos esporádicos

Al sur de Tailandia la ciudad de Singapur y la Federación Malaya han quedado prácticamente libres de viruela desde 1949 Menos favorable es la situación en el archipiélago de Indonesia donde se notificaron 52 228 casos en 1950 y 101 375 al año siguiente Esas cifras se han reducido considerablemente en los últimos años pero en 1955 la infección persistía en Java Sumatra Borneo y Celebes a pesar de no haberse notificado oficialmente más que 1388 casos

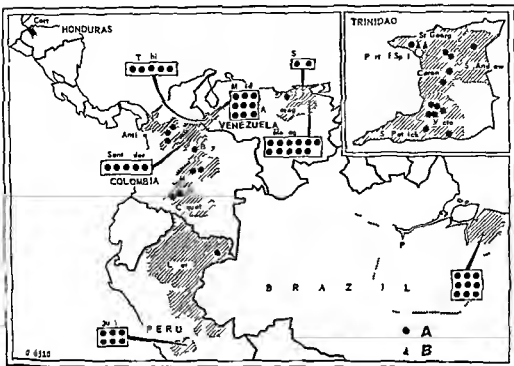
Con excepción de algunos casos esporádicos registrados en Taiwán (nueve en 1954 por ejemplo) y en la isla de Shikoku perteneciente al archipiélago japonés las islas del Pacífico occidental situadas al norte del Ecuador han quedado libres de la enfermedad No se tienen datos sobre China

Entre los países del Asia occidental se han registrado infecciones en Afganistán Irak e Irán Desde 1951 han quedado prácticamente libres de viruela Siria Líbano Israel y Jordania

África

La prevalencia de la viruela en África ha disminuido en los últimos años Apenas se

MAPA 4 LA FIEBRE AMARILLA EN AMERICA 1954 CASOS NOTIFICADOS EN LAS PRINCIPALES REGIONES DE CADA PAIS *



A = Fiebre amarilla selvatica

B = Casos no relacionados directamente con la fiebre set once ocurridos en zonas infestadas por *Aedes aegypti*

Of S Am Panamericana, Ofic R ar l de l Organizacion Mundial de l Sal d (1955) Informe Anual del Director
to 4 Washng D C (Documentos Oficiales N 31) p 37

uentes pusieron de manifiesto la existencia de un complexísimo e interesante grupo de problemas en los que intervienen — some todos al influjo de otros muchos factores — elementos tan dispares como los virus el hombre los primates y quizá los marsupiales huéspedes también de la infección y por último los mosquitos Comenzaron así a ordenarse las piezas del rompecabzas las influencias del medio el clima las costumbres la ocupacion los movimientos de población la resistencia natural o artificial a la enfermedad y otros muchos factores conocidos que no son seguramente todos los

que intervienen en el problema pero que dan una idea bastante clara de sus proporciones

La historia de la lucha contra la fiebre amarilla que ofrece un enorme interes para los hombres de ciencia, es asimismo motivo de legitima satisfaccion para las autoridades sanitarias que fundándose en los descubrimientos científicos han combatido la enfermedad y evitado su propagacion mediante campanas de eficacia raras veces igualada en los anales de la medicina Corresponde a los paises de America el merito de haber creado servicios administrativos capaces de luchar con exito contra la fiebre amarilla Por si

probablemente bastantes casos notificados como de viruela son de tipo benigno y quizá de enfermedades distintas como la varicela y otras erupciones cutáneas que a veces se confunden con la viruela

En los seis años de 1949-1954 se recibieron de cuarenta puertos cien notificaciones de barcos infectados correspondientes a cuatro puertos de Europa, dos del norte de África, uno de Australia, otro de Filipinas y los restantes de Asia. En cuarenta y un casos los buques procedían de puertos de la India y del Pakistán, en siete de China y en cincuenta y dos de puertos de otros países (casi todos de Asia). Rara vez figuraban en las notificaciones grandes trasatlánticos.

Los casos secundarios motivados por las escasas infecciones introducidas en poblaciones exentas de viruela por buques o — lo que todavía es más raro — por aeronaves han contribuido a poner de manifiesto las dificultades que ofrece el diagnóstico de las formas modificadas de la enfermedad.

Si bien es verdad que el peligro de transmisión de las formas benignas y atípicas plantea nuevos problemas a las administraciones sanitarias, la limitación de las manifestaciones graves en ciertas zonas endémicas del globo ha dado por resultado una disminución decisiva de la importancia de la enfermedad. Es deplorable que todavía existan focos endémicos que deben vigilarse para impedir que la infección se propague a otras regiones, pero la viruela ha dejado de ser una amenaza para todos los países como lo era todavía a principios de siglo.

LA FIEBRE AMARILLA

Característica peculiar de la fiebre amarilla es su vinculación a las zonas tropicales de África y de América y su ausencia de otras regiones continentales donde las condiciones climatológicas parecen ser favorables a su aparición como ocurre en Asia. Continente que la fiebre amarilla ha respetado siempre

aun cuando en ocasiones ha invadido Europa y América del Norte. Este enigma epidemiológico es una de las consideraciones de mayor importancia para la aplicación de las prácticas de cuarentena.

En los siglos XVII, XVIII y XIX se registraron graves epidemias de fiebre amarilla en el oeste de África, en el Caribe, en Centroamérica y en los países adyacentes a esta última región. La enfermedad ocasionaba a menudo pérdidas muy considerables a las compañías navieras y hacia estragos entre las personas recién llegadas a las zonas infectadas. Su propagación siguió las rutas marítimas que unían el oeste de África y las zonas tropicales de América con los puertos del suroeste de Europa y el sureste de los Estados Unidos y con las zonas contiguas. Se produjeron asimismo invasiones aisladas en regiones más septentrionales.

De sobra conocida es la apasionante historia de las victorias del hombre sobre la fiebre amarilla. Hay pocos capítulos en los anales de la medicina que presenten tanto interés. La hipótesis de la transmisión por los insectos, sugerida por Carlos J. Finlay, fue confirmada por Reed y sus colaboradores de la Comisión de Fiebre Amarilla del Ejército de los Estados Unidos. La fiebre amarilla perdió así el carácter amenazador que siempre se atribuye a lo desconocido y se convirtió en una enfermedad que podía evitarse. A partir de ese momento la lucha contra la fiebre amarilla se transforma en una serie increíble de éxitos científicos y administrativos.

Al descubrimiento del virus agente siguió el de sus afinidades inmunológicas con otros virus y en particular con los causantes del dengue y de algunas formas de encefalitis. Se estudiaron los vectores de la enfermedad: el *Aedes aegypti*, propagador de la forma urbana, y las especies vectoras de las formas rural y selvática de la fiebre amarilla en América y África. Los estudios ecológicos y epidemiológicos realizados en ambos con-

cales ha quedado reducida a su actual situacion y circunscrita a unos limites perfectamente definidos hay que agradecerlo en efecto a la feliz conjugacion de los conocimientos cientificos y de su aplicacion eficaz

Situacion actual

América

Las campanas de lucha contra la fiebre amarilla emprendidas por las autoridades sanitarias en los ultimos años figuran como ya se ha dicho entre las realizaciones más notables de la moderna medicina preventiva. Los descubrimientos científicos aplicado por servicios medicos bien organizados han permitido llegar a la favorable situacion actual. Desde 1934 no se han senalado en América casos de fiebre amarilla transmitida por *Aedes aegypti* si se exceptua el brote de 1954 en Trinidad donde el vector de tres de los casos senalados parece haber sido ese mosquito.

Apenas descubierta la intervencion de los insectos como vectores de la enfermedad — es decir en los primeros años del presente siglo — se emprendieron programas de lucha contra el mosquito. El carácter de esos programas se modifico ulteriormente pasando de la lucha contra los mosquitos en general a la erradicacion de la especie *Aedes aegypti* iniciada en el Brasil por el Servicio Nacional de Fiebre Amarilla con ayuda de la Fundacion Rockefeller. En 1947 el Consejo Directivo de la Organizacion Sanitaria Panamericana ensalzó las medidas adoptadas con ese propósito fomentando y facilitando su aplicacion en todos los paises de América central y meridional.

Gracias a ese denodado esfuerzo cuyos efectos alcanzan a gran parte de América las perspectivas de la fiebre amarilla han cambiado radicalmente y la enfermedad ha desaparecido de las ciudades, los pueblos y otros núcleos de poblacion antes infestados de *Aedes aegypti*. No se han colmado sin embargo las esperanzas de que la erradica-

cion de esa especie terminaria para siempre con la fiebre amarilla. En 1933 se descubrio otra forma de la infeccion, la fiebre amarilla selvática transmitida por mosquitos distintos de *Aedes aegypti*.

Es verdad que son raras las personas que contraen esa forma de la enfermedad transmitida en América por especies de mosquitos y primates que viven alejados de las habitaciones humanas pero cuando el hombre se adentra en la selva donde existen focos activos de infeccion aparece el peligro de contagio. Los casos de fiebre amarilla registrados recientemente en América pertenecen a esta forma de la enfermedad, cuya variable incidencia local explica la irregularidad de su propagacion por la intervencion de diversos factores. Las epizootias se propagan por las regiones selváticas donde coexisten el virus, el vector y los primates huéspedes de la infeccion. En ciertas zonas donde la vegetacion es muy densa, situadas en los valles del Amazonas y del Orinoco en las Guayanas, Venezuela y Panamá la enfermedad tiene al parecer caracter enzootico.

En el Cuadro IV basado en datos oficiales se indica la incidencia de la fiebre amarilla humana en América.

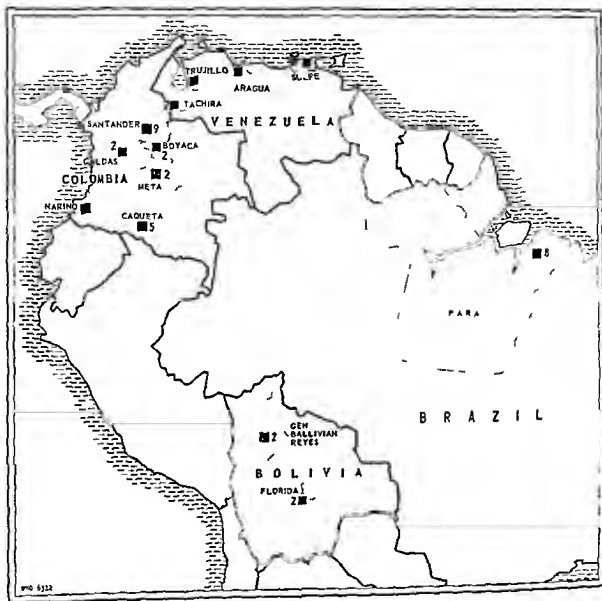
Por su especial interes cabe mencionar la reciente propagacion de la fiebre amarilla selvática a los paises de América Central su aparicion en Trinidad en 1954 y su virtual desaparicion del Brasil (excepcion hecha de una zona) en el mismo año.

Además del programa de erradicacion de *Aedes aegypti* se ha emprendido en las Américas la vacunacion en gran escala de la poblacion rural.

África

Existen ciertas diferencias entre el continente africano y el americano en lo que se refiere a la epidemiologia de la fiebre amarilla. En el África Occidental por ejemplo el habitat de la especie *Aedes aegypti* es mucho más extenso que en América y no está tan

MAPA 5 FIEBRE AMARILLA EN LAS AMERICAS 1955 CASOS NOTIFICADOS EN LAS PRINCIPALES REGIONES DE CADA PAIS *



Datos tomados de informes provisionales

solos o por conducto del organismo inter gubernamental creado por ellos — la Organización Sanitaria Panamericana y su Oficina asistida por la Fundación Rockefeller — los servicios médicos de esos países han perfeccionado los métodos que hoy permiten combatir e incluso erradicar la especie *Aedes aegypti* vectora de la fiebre amarilla urbana atacar a la enfermedad en sus reservorios enzooticos de la selva y proteger eficazmente

a las personas mediante la vacunación anti amarilla

La aplicación de esos métodos para resolver un complicado problema médico de alcance continental es tan laudable y ejemplar como la labor científica que sin embargo es la que más suele recordarse. Si una enfermedad como la fiebre amarilla que causó en otras épocas terribles estragos y detuvo considerablemente el progreso de las regiones tropi

cales ha quedado reducida a su actual situación y circunscrita a unos límites perfectamente definidos hay que agradecerlo en efecto a la feliz conjugación de los conocimientos científicos y de su aplicación eficaz

Situación actual

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África

Existen ciertas diferencias entre el continente africano y el americano en lo que se refiere a la epidemiología de la fiebre amarilla. En el África Occidental por ejemplo el hábitat de la especie *Aedes aegypti* es mucho más extenso que en América y no está tan

**CUADRO IV CASOS DE FIEBRE AMARILLA Y DEFUNCIONES POR ESA ENFERMEDAD EN AMERICA
DE 1946 A 1950 Y DE 1951 A 1955**

País o territorio		Total 1946-50	1951	1952	1953	1954	1955	Total 1951-55
Bolivia	C	1842	3	1	18	2	4	28
	D	—	0	0	11	0	3	14
Brasil	C	14	46	223	33	9	8	325
Guayana Británica	C	2	0	0	0	0	0	0
Colombia	C	—	—	—	11	13	21	—
	D	215	24	16	11	13	18	22
Costa Rica	C	0	171	18	0	0	0	189
	D	0	43	13	0	0	0	56
Ecuador	C	19	42	0	0	0	0	42
	D	5	11	0	0	0	0	11
Honduras	C	0	0	0	0	1	0	1
	D	0	0	0	0	1	0	1
Nicaragua	C	0	0	6	8	0	0	14
Panamá	C	6	1	1	0	0	0	2
	D	1	1	1	0	0	0	2
Peru	C	28	4	1	0	7	0	12
	D	—	4	1	0	7	0	12
Trinidad	C	0	0	0	0	15	0	15
	D	0	0	0	0	4	0	4
Venezuela	C	20	3	1	6	28	5	43

C = casos

D = defunciones

— = no se dispone de datos

* En el Estado de Goyaz se señalaron además 100 casos y 20 defunciones en 1950 y de 2000 a 3000 casos y 400 defunciones en 1951

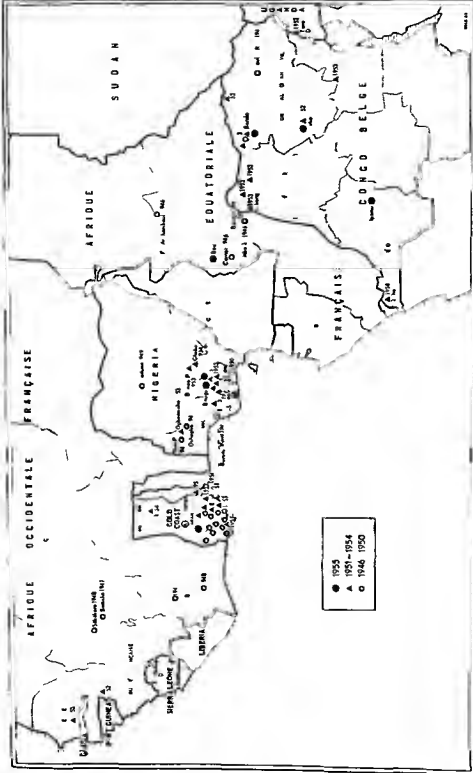
estrictamente limitado a los lugares habitados por el hombre, circunstancia que dificulta la lucha contra el mosquito y más aun su erradicación. Los actuales conocimientos permiten suponer, por otra parte, que existe un tipo de fiebre amarilla selvática probablemente más complicado que el de las Américas y cuya propagación a las personas tiene características diferentes. En África las relaciones entre el mosquito y el mono no se circunscriben de manera tan absoluta al recinto de la selva, sino que los simios en sus correrías abandonan a veces el espesor de la selva y llevando el *Aedes simpsoni* a las aldeas y poblados pueden causar infecciones humanas.

La prueba de protección en el ratón se ha empleado mucho en África y ha dado reacciones positivas incluso en zonas donde no existían casos inequívocos de infección

humana. Ello no obstante la vacunación de creciente número de personas en muchos países africanos probablemente hará todavía más difícil realizar encuestas de inmunidad para determinar la presencia de infecciones previas.

Por diversos procedimientos pero sobre todo empleando la prueba citada (llamada también reacción serológica de inmunidad) se ha podido demostrar la presencia ocasional del virus de la fiebre amarilla en varios lugares del oeste centro y este de África pero no en la costa oriental del continente ni en las regiones situadas al sur de Bechuanalandia septentrional donde hubo algunas reacciones positivas. La extensión de esa zona sobre todo en los territorios meridionales y orientales es muy superior a la de las regiones donde se han registrado brotes de fiebre amarilla humana. La localización tradicional de

MAPA 6 LA FIEMRE AMARILLA EN AFRICA 1946 1955 ZONAS EN QUE SE REGISTRARON CASOS DURANTE EL AÑO 1955 Y LOS PERIODOS 1951 1954 Y 1946-1950



esas manifestaciones es la costa occidental del continente fuera de ella solo se puede atribuir inequívocamente a la enfermedad el brote de 1940, en la región montañosa de Nuba y algunos casos aislados en las selvas congoleñas del África central y centrooriental. Si se exceptúan los territorios del África occidental y, sobre todo Costa de Oro y Nigeria que son los centros principales de la infección la fiebre amarilla humana no ha tenido en África manifestaciones repetidas y clínicamente identificables.

Lo mismo en el continente africano que en América hay dos clases de fiebre amarilla

humana una infección de contagio humano (forma urbana), cuyo vector es *Aedes aegypti* y una enfermedad (forma selvática) que ataca principalmente a los monos y que en ocasiones se transmite al hombre. Existen en cambio, notables diferencias entre las formas urbana y selvática de la enfermedad propias de ambos continentes lo que se explica por ser distintas en cada uno de ellos las especies de mosquitos vectores y los primates (y quizá también otros animales) huéspedes de la infección.

Los casos humanos registrados en África se reparten así:

Pais o territorio	Tal 1946-1950	1951	1952	1953	1954	1955	Tal 1951-1955
África Occidental Francesa	6	2	1	2	0	0	5
Sierra Leona	4	0	0	0	0	2	2
Costa de Oro	49	25	6	1	2	7	41
Nigeria	50	13*	42*	16	2	1	74*
África Ecuatorial Francesa	5	0	0	0	0	1	1
Congo Belga	8	0	5	8	1	3	17
Uganda	0	0	1	0	0	0	1

Otra referencia (Nigeria Department of Medical Services (1954) Annual report on the Medical Services for the year 1951-1952 Lagos p. 16) señala además 3500 casos y 600 defunciones registrados en la división de Udu provincia de Onitsha región oriental desde octubre de 1951 hasta enero de 1952.

Zonas receptivas a la fiebre amarilla

La expresión «zonas receptivas a la fiebre amarilla», que se emplea en el vigente Reglamento Sanitario Internacional se aplica a aquellas zonas cuyas condiciones permitirían el desarrollo de la infección si esta llegara a introducirse en ellas. Salvo raras excepciones la especie *Aedes aegypti* existe en todas las zonas tropicales y subtropicales cuyas poblaciones se consideran por tanto susceptibles a la fiebre amarilla en cuanto el virus se introduzca en la región. Como el vector aparece además al norte y al sur de los trópicos sobre todo durante las épocas de calor hay una gran parte del mundo expuesta a la infección que transmite *Aedes aegypti*. Ello no obstante son las zonas tropicales y subtropicales las que en la práctica deben considerarse expuestas toda vez que es en ellas donde la presencia del vector y las variaciones de tem-

peratura permiten al virus establecer el ciclo de contagio del mosquito al hombre y viceversa. Esta circunstancia es la que ha determinado la naturaleza de las medidas internacionales adoptadas para reducir el peligro de que el virus se propague a zonas distintas de sus focos africanos y americanos.

A este respecto suscitan cierta preocupación las regiones del Asia Sudoriental y del Pacífico Occidental donde la densidad de población es muy grande y la situación se complica todavía más por la presencia de monos susceptibles a la infección como por ejemplo el macaco de la India. Es de suponer que llegado el caso los mosquitos de esas regiones podrían servir de vectores al virus y por otra parte la población humana y las especies locales de primates son susceptibles y las condiciones ecológicas parecen adecuadas para que la enfermedad arraigue.

* * *

Aunque todavía está vivo el recuerdo de los estragos de la fiebre amarilla en otras épocas sobre todo en la zona del Caribe y en África occidental es indudable que en este siglo la enfermedad ha perdido importancia. El conocimiento de su etiología y de su epidemiología ha permitido en efecto combatirla eficazmente en extensas zonas amenazadas antes por la infección y desde hace muchos años no se ha notificado ningún caso de fiebre amarilla que haya podido atribuirse fundadamente a los viajes internacionales marítimos o aéreos.

En las Américas gracias a las campañas de erradicación de mosquitos combinadas con la vacunación en masa la fiebre amarilla no existe más que en sus manifestaciones peculiares de zonas remotas de la selva. En África por circunstancias epidemiológicas que todavía no se conocen la forma selvática presenta una sintomatología atenuada hasta el extremo de que rara vez puede identificarse claramente. Ello no obstante los países africanos están empleando también la vacunación en masa para reducir la amenaza de la fiebre amarilla tanto en esa forma como en la urbana.

No cabe duda de que el complicado sistema de relaciones ecológicas entre los mosquitos vectores de la infección y sus huéspedes vertebrados se conoce todavía de manera muy imperfecta. Así y todo se ha conseguido contrarrestar la fiebre amarilla humana y se ha reducido la amenaza que representa para las zonas receptoras.

CONCLUSIONES

En los años transcurridos desde la terminación de la Segunda Guerra Mundial la extensión y la gravedad de las llamadas «enfermedades cuarentenables» es decir el cólera la peste el tifus exantemático la fiebre recurrente la viruela y la fiebre amarilla han disminuido de manera espectacular

y la amenaza que antano representaban esas dolencias se ha disipado casi por completo. Sus antiguos focos endémicos se han reducido mucho y lo mismo ha ocurrido con la frecuencia y el alcance de los brotes de infección que partiendo de ellos se extienden en ocasiones a otras zonas.

La disminución observada en la propagación internacional de las enfermedades cuarentenables puede atribuirse a multitud de factores: la realización de investigaciones intensivas en los laboratorios y sobre el terreno que han dado a conocer todos o casi todos sus aspectos etiológicos y epidemiológicos; la existencia de eficaces medidas preventivas y terapéuticas contra la mayor parte de esas dolencias y por último el mejoramiento de las condiciones sanitarias generales en la mayoría de los países que permite combatir mejor casi todas las enfermedades transmisibles y hace más difícil que arraiguen en las zonas donde consiguen penetrar. Los países que disponen de servicios sociales y sanitarios bien organizados tienen ya poco que temer de la introducción de cualquier enfermedad cuarentenable y aquellos donde por desgracia una o varias de esas dolencias tienen todavía carácter endémico están mejorando sus servicios médicos y sanitarios con lo que disminuye el peligro de transmisión para ellos y para sus vecinos. Salvo raras excepciones los viajes transoceánicos e intercontinentales se realizan en buques y aeronaves que por sus excelentes condiciones de higiene y limpieza hacen en extremo improbable la propagación de las enfermedades o de sus vectores.

El temor a la invasión de las enfermedades cuarentenables y a sus consecuencias para los viajes internacionales no tiene ya por que figurar entre las principales preocupaciones de las autoridades sanitarias nacionales que saben perfectamente que los modernos conocimientos epidemiológicos y sanitarios así como el mejoramiento general de las condiciones económicas y sociales de todos los

pueblos protegen eficazmente a estos contra el colera la peste y las demás dolencias que antaño constituían amenazas graves. Pertece ya al pasado la época en que por igno-

rancia y por falta de medios preventivos las enfermedades cuarentenables sembraban la muerte el pánico y el caos en naciones enteras

CRECIENTE IMPORTANCIA DEL MOVIMIENTO INTERNACIONAL DE VIAJEROS Y MERCANCIAS

La rapidez de los modernos medios de transporte y la mutua dependencia política económica y social cada vez más estrecha que existe entre todos los países tienden a suprimir las barreras que los separan. Muy pocos pueblos por «isleños» que sean, pueden considerarse aislados. La aspiración a viajar libremente común a todos los hombres y la necesidad general de recibir o de exportar materias primas y productos manufacturados han adquirido un impulso irresistible. Verdad es que se perdió el prestigioso misterio de los territorios inexplorados pero el afán de viajar se acentúa en cambio más que nunca.

El movimiento mundial de personas y de mercancías de barcos, aeronaves y otros medios de transporte es uno de los fenómenos más asombrosos de la civilización moderna. Su influencia se extiende a pasos agigantados y une cada vez más a todos los pueblos y a todas las regiones del mundo. Sería insensato negar la importancia del tráfico internacional como uno de los pilares en que se funda el desenvolvimiento de la economía mundial en su conjunto y de la economía particular de la inmensa mayoría de los países. Interesa a todos los gobiernos granjearse la simpatía y la comprensión de los demás países, aumentar la divulgación de los conocimientos científicos, fomentar las relaciones culturales, facilitar la cooperación técnica y los movimientos migratorios e incluso promover el turismo. Cualquiera de esos objetivos exige la rapidez y la facilidad de los viajes. Es necesario, pues, que los convenios sanitarios

internacionales no perturben con trámites inútiles el tráfico entre los países.

Algunas cifras concretas darán idea de la importancia y naturaleza de los problemas que plantea hoy el transporte de personas y de mercancías. En el Cuadro I se indican las actuales proporciones del comercio mundial y la participación correspondiente a casi todas las regiones.

La influencia de esas cifras sobre la navegación se traduce en el aumento de tonelaje de las flotas mercantes que entre 1948 y 1954, ha pasado de unos 80 millones a más de 97 millones de toneladas de registro bruto.

La aviación adquiere cada día mayor importancia en el transporte de mercancías y rivaliza ya con la navegación marítima en el transporte internacional de personas. El número de pasajeros de líneas internacionales en 1955 excedió de 10 millones según indican las cifras siguientes:

Año	Número de pasajeros internacionales transportados por servicios regulares de líneas aéreas ¹
1948	3 893 638
1950	5 998 435
1952	8 105 043
1954	10 636 307

Conviene señalar asimismo que entre julio y septiembre [de 1954] las empresas aéreas extranjeras que mantienen servicio con los Estados Unidos transportaron aproximadamente un 50% más de pasajeros.

Datos de la Organización de Aviación Civil Internacional en Compendio Estadístico, números 9, 46 y 54. Serie T, números 8, 11 y 12. Estas cifras corresponden a 127 líneas aéreas de 44 países. No se incluyen las relativas a la URSS, la China continental y los países de Europa oriental.

**CUADRO I VALOR DE LAS IMPORTACIONES Y EXPORTACIONES
EN DOLARES DE LOS ESTADOS UNIDOS**

	Importaciones		Exportaciones	
	1948	1953	1948	1953
	En millones de dólares		En millones de dólares	
TODOS LOS PAISES	58,400	75,850	715	73,600
América del Norte	10,900	16,260	15,740	19,900
Países latinoamericanos de la zona del dólar	2,980	3,430	3,270	3,640
Países latinoamericanos no incluidos en la zona del dólar	3,390	3,050	3,490	3,530
Países continentales de Europa occidental	15,790	21,290	10,010	19,400
Territorios ultramarinos de los países continentales de Europa occidental	2,450	3,420	1,660	2,770
Zona de la libra esterlina	17,220	19,290	14,660	17,850
Otros países de Europa y el territorio dependientes	1,350	1,610	1,210	1,300
Países del Oriente Medio no incluidos en la zona de la libra esterlina	1,520	1,720	1,850	1,600
Países del Extremo Oriente y otros de la zona de la libra esterlina	2,330	4,930	1,310	3,110
Resto del mundo	65	60	35	45

Datos del Anuario Estadístico de las Naciones Unidas para 1955 (Cuadro 144). Nueva York. Con el excluido Alemania Oriental, Bulgaria, Corea Septentrional, Checoslovaquia, China Continental, Hungría, Polonia, Rumanía y la URSS. España, Finlandia y Yugoslavia se clasifican. Corea Septentrional y China Continental al otro.

procedentes de ese país o con destino a él que las compañías navieras. En la traviesa del Atlántico donde las líneas aéreas compiten con los más veloces y lujosos buques de pasajeros el número de las personas que viajan por mar supera con mucho el de las que utilizan el avión. Las líneas marítimas que hacen esa traviesa transportaron en efecto 938 000 pasajeros lo que representa un aumento del 5/ con respecto a 1953 mientras que en los servicios regulares aéreos viajaron 581 000 personas cifra superior en un 11/ a la del año anterior.²

La mayoría de los países procuran además

atraer a un nuevo tipo de viajero internacional el turista. Para muchos de ellos representa una fuente saneada de ingresos que los gobiernos tratan de aumentar por todos los medios. Dará idea de las proporciones del movimiento internacional de pasajeros el hecho de que durante el periodo anual que terminó el 30 de junio de 1955 más de un millón y medio de personas salieron de los Estados Unidos de América con destino a otros países.

Los datos conocidos sobre los viajes internacionales y el transporte marítimo y aéreo se refieren exclusivamente a las líneas regulares que por lo general observan normas adecuadas de construcción y administración. Prácticamente han desaparecido

² Organización de Aviación Civil Internacional (1955). Informe del Consejo la Asamblea sobre la actividad de la Organización durante 1954. Montreal (Documento 7564 A-9-P-2, p. 55), p. 4.

pueblos protegen eficazmente a estos contra el colera, la peste y las demás dolencias que antaño constituían amenazas graves. Perteneció ya al pasado la época en que por igno-

rancia y por falta de medios preventivos las enfermedades cuarentenables sembraban la muerte el pánico y el caos en naciones enteras

CRECIENTE IMPORTANCIA DEL MOVIMIENTO INTERNACIONAL DE VIAJEROS Y MERCANCÍAS

La rapidez de los modernos medios de transporte y la mutua dependencia política, económica y social cada vez más estrecha que existe entre todos los países tienden a suprimir las barreras que los separan. Muy pocos pueblos por «isleños» que sean pueden considerarse aislados. La aspiración a viajar libremente, común a todos los hombres y la necesidad general de recibir o de exportar materias primas y productos manufacturados han adquirido un impulso irresistible. Verdad es que se perdió el prestigioso misterio de los territorios inexplorados pero el afán de viajar se acentúa, en cambio más que nunca.

El movimiento mundial de personas y de mercancías de barcos, aeroplanos y otros medios de transporte es uno de los fenómenos más asombrosos de la civilización moderna. Su influencia se extiende a pasos agigantados y une cada vez más a todos los pueblos y a todas las regiones del mundo. Sería insensato negar la importancia del tráfico internacional como uno de los pilares en que se funda el desenvolvimiento de la economía mundial en su conjunto y de la economía particular de la inmensa mayoría de los países. Interesa a todos los gobiernos granjearse la simpatía y la comprensión de los demás países aumentar la divulgación de los conocimientos científicos, fomentar las relaciones culturales, facilitar la cooperación técnica y los movimientos migratorios e incluso promover el turismo. Cualquiera de esos objetivos exige la rapidez y la facilidad de los viajes. Es necesario pues que los convenios sanitarios

internacionales no perturben con trámites inútiles el tráfico entre los países.

Algunas cifras concretas darán idea de la importancia y naturaleza de los problemas que plantea hoy el transporte de personas y de mercancías. En el Cuadro I se indican las actuales proporciones del comercio mundial y la participación correspondiente a casi todas las regiones.

La influencia de esas cifras sobre la navegación se traduce en el aumento de tonelaje de las flotas mercantes que entre 1948 y 1954 ha pasado de unos 80 millones a más de 97 millones de toneladas de registro bruto.

La aviación adquiere cada día mayor importancia en el transporte de mercancías y rivaliza ya con la navegación marítima en el transporte internacional de personas. El número de pasajeros de líneas internacionales en 1955 excedió de 10 millones, según indican las cifras siguientes:

Años	Número de pasajeros internacionales transportados por servicios regulares de líneas aéreas
1948	3 893 638
1950	5 993 435
1952	8 105 043
1954	10 676 307

Conviene señalar asimismo que entre julio y septiembre [de 1954] las empresas aéreas extranjeras que mantienen servicio con los Estados Unidos transportaron aproximadamente un 50% más de pasajeros

Datos de la Organización de Aviación Civil Internacional en Compendio Estadístico, números 29, 45 y 44. Serie T, números 1, 11 y 12. Estas cifras corresponden a 127 líneas aéreas de 44 países. No se incluyen las rutas a la URSS, la China Continental y los países de Europa oriental.

za de los servicios acreditados de transporte marítimo y aéreo en cuanto se refiere al mejoramiento de las condiciones médicas y sanitarias y es imposible por lo menos en la práctica someterlo a una vigilancia sanitaria eficaz. A ese tráfico amorfo y localizado pero de enormes proporciones hay que atribuir la influencia que todavía puedan tener hoy los viajes en la propagación de las enfermedades.

Las estaciones de salida y llegada y los puertos de embarque y desembarque también forman parte del complejo constituido por el tráfico mundial y la propagación de las enfermedades y están siendo objeto de transformaciones radicales. La intensidad del transporte actual requiere puertos y aeropuertos grandes y modernos. En 1954 por ejemplo entraban en los Estados Unidos solo por el puerto de Nueva York más de un millón de personas y en los aeródromos del país cada media hora por término medio despegaba una aeronave para realizar la travesía del Pacífico o del Atlántico.

Las llamadas grandes potencias no son las únicas que tienen un volumen considerable de tráfico e importantes centros de comunicaciones. Todos los países se dan perfecta cuenta de las ventajas económicas y de toda índole que resultan de la posesión de buenos puertos y aeropuertos internacionales por cuyo motivo compiten entre sí para conseguir escalas regulares de los buques y los aviones extranjeros.

El puerto moderno no es una amenaza como el de antaño aunque algunos países no observan aun todas las normas de saneamiento, limpieza e higiene que debieran. La inmensa mayoría de los puertos importantes han dejado de ser focos de peste, de cólera o de tifus. Casi todos los países están convencidos de las ventajas económicas y del prestigio que otorga el perfeccionamiento de las instalaciones portuarias y la eficacia de su funcionamiento y observan cada vez mejor las disposiciones del Reglamento

Sanitario Internacional sobre puertos y aeropuertos.

Desde la época ya lejana en que se adoptaron las primeras disposiciones sanitarias de carácter internacional las autoridades competentes han demostrado el firme propósito de no perturbar innecesariamente el tráfico entre los países y cada día se reconoce más ampliamente toda la importancia que tiene para el desarrollo económico de las naciones para la distribución la abundancia y la variedad de los alimentos y de otros artículos de primera necesidad para los intercambios científicos para el comercio mundial para los viajes internacionales el comercio y en general para el mejoramiento de la salud y de las condiciones sociales. La continua extensión de los servicios médicos y sanitarios de todos los Estados se ha traducido afortunadamente en una disminución de la frecuencia de las enfermedades cuarentenables a las que por esa misma causa las poblaciones son ahora menos susceptibles de manera que esta terminando el período de aplicación estricta de las medidas restrictivas de la cuarentena. La medicina se esfuerza por detener la propagación de las enfermedades cuarentenables y estimular al propio tiempo la acción de los factores provechosos para la economía y el bienestar de los pueblos lo que permite armonizar cada vez mejor la aplicación de las medidas sanitarias con las legítimas exigencias del tráfico mundial.

Desde el punto de vista médico se comprenden perfectamente los motivos de los viajeros y comerciantes cuando piden la supresión de todas las trabas que estorban el tráfico internacional. Las numerosas disposiciones que lo regulan hacen perder tiempo y dinero y suscitan las censuras de quienes han de sufrir sus consecuencias. Se ha llegado a decir por ejemplo que «Sir Francis Drake no podría hacer en nuestros días su viaje de circunnavegación antes de embarcar le detendrían por carecer de pasaporte y por



Desinsectación del interior de una aeronave por una a.afata
(Con autorización del Servicio de Salud Pública de los Estados Unidos de América)

los barcos mal ventilados infestados de ratas y sucios que transportaban un pasaje excesivo. Casi todos los países exigen ya que los barcos que navegan bajo su pabellón estén bien contruidos e imponen todas las condiciones necesarias para proteger la salud de pasajeros y tripulantes y reducir al mínimo el peligro de que a bordo aparezcan infecciones o vectores de infección. Esa circunstancia ha contribuido a modificar favorablemente la distribución epidemiológica de algunas enfermedades cuarentenables como la peste y el cólera. Los servicios aéreos regulares están obligados a observar asimismo normas rigurosas de seguridad

para evitar el riesgo de accidentes y proteger la salud de los pasajeros. Hoy las aeronaves no suelen estar en malas condiciones higiénicas.

Ocurre sin embargo que los datos oficiales del transporte marítimo y aéreo no recogen más que una parte de la realidad: numerosas embarcaciones de pequeño tonelaje — como en ciertos océanos los « dhows » y los juncos — surcan todos los mares; trenes, caravanas, camiones y viajeros aislados que las estadísticas no registran cruzan sin cesar las fronteras. En la mayoría de los casos ese irregular movimiento internacional de viajeros y mercancías se ha quedado muy a la

zaga de los servicios acreditados de transporte marítimo y aéreo en cuanto se refiere al mejoramiento de las condiciones medicas y sanitarias y es imposible por lo menos en la práctica someterlo a una vigilancia sanitaria eficaz. A ese tráfico amorfo y localizado pero de enormes proporciones hay que atribuir la influencia que todavia puedan tener hoy los viajes en la propagacion de las enfermedades.

Las estaciones de salida y llegada y los puertos de embarque y desembarque tambien forman parte del complejo constituido por el trafico mundial y la propagacion de las enfermedades y están siendo objeto de transformaciones radicales. La intensidad del transporte actual requiere puertos y aeropuertos grandes y modernos. En 1954 por ejemplo entraban en los Estados Unidos sólo por el puerto de Nueva York más de un millon de personas y en los aerodromos del pais cada media hora por termino medio despegaba una aeronave para realizar la travesia del Pacifico o del Atlantico.

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haber intentado una exportación ilegal de divisas, pero aun suponiendo que tuviera la suerte de eludir la vigilancia de las autoridades del puerto de salida no podría pasar de la primera escala por no estar vacunado »³ Se atribuye por otra parte, a una persona lidad destacada de los servicios aereos internacionales la observacion de que si bien en la actualidad la vuelta al mundo en avion exige solamente cinco dias de viaje y cuesta 1350 dólares requiere un minimo de seis semanas y unos 150 dolares para poner la documentación en regla Añádase a todo ello las considerables perdidas que, como es sabido resultan directamente de los retrasos impuestos al tránsito de buques y aeronaves y los perjuicios e inconvenientes que causan a muchas personas

Las Naciones Unidas se hacen cargo de la necesidad de eliminar las restricciones a los viajes Algunos de sus órganos entre ellos el Consejo Económico y Social (ECOSOC) se han ocupado repetidas veces de la cuestion En la *Revista de las Naciones Unidas* se decia en efecto lo siguiente

« Encargado de promover el progreso económico y social en el mundo este ultimo lo mismo que sus cuerpos subalternos asi como las comisiones economicas regionales para America Latina, para Europa y para Asia y el Extremo Oriente y la comision de transportes y comunicaciones han discutido y estudiado vanas formas de hacer más fáciles los viajes ultramarinos

« En los años recientes mucha de la labor del Consejo Económico y Social y sus cuerpos subalternos se ha dedicado a idear la simplificacion de las formalidades de fronteras »⁴

En su noveno periodo de sesiones celebrado en mayo de 1955 el Consejo Economico y Social dispuso que el Secretario General de las Naciones Unidas pidiera otra

vez a los gobiernos que le informasen oficialmente de las medidas adoptadas por ellos para simplificar los trámites fronterizos y de pasaportes Los debates del Consejo versaron particularmente sobre el turismo cuya importancia económica ha crecido « tanto que las utilidades derivadas del turismo en 1953 fueron mayores que las que se obtuvieron en el comercio mundial del trigo segun cifras relativas a 41 países compiladas por el Fondo Monetario Internacional »⁵ El ECOSOC pidió en consecuencia « a los órganos de las Naciones Unidas y a los organismos especializados competentes que considerasen de modo favorable los proyectos de carácter constructivo cuya finalidad sea incrementar los servicios turísticos y fomentar los viajes »⁶

Otras organizaciones internacionales se ocupan tambien del tráfico mundial de viajeros y de cuanto con el se relaciona Asi por ejemplo la Organizacion de Aviacion Civil Internacional procura por todos los medios aumentar la facilidad y la rapidez de los viajes y mejorar en colaboracion con la OMS las condiciones de saneamiento e higiene de los aeropuertos La Union Internacional de Organizaciones Oficiales de Turismo sigue atentamente el aumento del tráfico internacional por medio de su Comision de Estudio de Estadísticas Internacionales de Viajes que en 1953 hizo la declaracion siguiente « El movimiento internacional de viajeros continua aumentando con gran rapidez y se extiende cada año a nuevos países sin que la demanda estimulada por el perfeccionamiento de los medios de transporte y por las inversiones destinadas a facilitar los viajes, de señales de disminuir »⁷

Documentos Oficiales del Consejo Económico y Social de las Naciones Unidas 19^o periodo de sesiones Resoluciones Suplemento N.º I Nueva York (Documento E/2730) 18 de abril de 1955) págs. 2

Unión Internacional de Organizaciones Oficiales de Turismo, Comision de Investigaciones y Organizacion (1953) International Statistics 1951 Fifth report of the Study Commission of the International Union of Official Travel Organizations on International Travel Statistics London págs. 1

Brit med J 1954 2 701

4 Revista de las Naciones Unidas 1955 238 46

EL REGLAMENTO SANITARIO INTERNACIONAL (Reglamento N° 2 de la OMS)

Los Convenios Sanitarios Internacionales firmados antes de 1944 e incluso los concluidos en ese año perseguían dos finalidades concretas: determinar las medidas susceptibles de reducir la propagación internacional de las enfermedades y no entorpecer innecesariamente el movimiento de personas y mercancías de un país a otro. Cada uno de los numerosos acuerdos concertados versaba sobre una materia determinada, pero ninguno de ellos reemplazaba por completo a los que le habían precedido ni siquiera a los que trataban de la misma cuestión. En 1945 y 1946 apenas terminada la guerra y cuando ya iba abriéndose camino la idea de celebrar una conferencia sanitaria internacional bajo la égida de las Naciones Unidas había en vigor trece convenios y acuerdos (véase Anexo 2 página 361) que ocasionaban una gran confusión diplomática y técnica y originaban demoras y dificultades sin cuento al transporte de mercancías y de pasajeros.

PREPARACION Y APROBACION DEL REGLAMENTO

La Constitución de la Organización Mundial de la Salud redactada en julio de 1946 dispone taxativamente en su artículo 21 que la Asamblea Mundial de la Salud tendrá «autoridad para adoptar reglamentos referentes a requisitos sanitarios y de cuarentena y otros procedimientos destinados a prevenir la propagación internacional de enfermedades». Por esa disposición se encomendaba a la OMS la importante tarea de gestionar un acuerdo internacional sobre cuestiones que tradicionalmente habían sido objeto de acaloradas controversias.

Durante el periodo 1946-1948 se emprendieron estudios preliminares sobre la posi-

bilidad de redactar un solo reglamento que fundado en concepciones epidemiológicas modernas sustituyera a los convenios sanitarios vigentes. Varios grupos de expertos convocados de común acuerdo por la OMS y el Office International d'Hygiène publique facilitaron los asesoramientos técnicos necesarios y más tarde la Primera Asamblea Mundial de la Salud creó el Comité de Expertos de la OMS en Epidemiología Internacional y Cuarentena encargándole de «revisar las convenciones sanitarias internacionales existentes y refundirlas en un solo conjunto de reglamentos que respondan a las necesidades sanitarias resultantes del tráfico de viajeros»¹.

El nuevo reglamento sanitario internacional tendría que inspirarse en ciertos principios² entre los cuales cabe citar los siguientes:

1. La notificación exacta y rápida de la aparición de enfermedades debe servir de base a la adopción de medidas eficaces para evitar la propagación internacional de la infección y para suprimir una vez pasado el peligro las restricciones impuestas al tráfico.

2. En vez de confiar en la eficacia de las medidas que puedan adoptarse en las fronteras todos los países deben organizar su protección interior contra las enfermedades mejorando las condiciones de saneamiento del medio combatiendo los insectos vectores inmunizando a toda la población contra ciertas enfermedades etc.

3. No deben tomarse en las fronteras otras medidas de precaución que las estrictamente imprescindibles habida cuenta de la situación

¹ A. J. Org. mond. Santé Off. Rec. Wld. Hlth. Org. 1948
13 306
² Actes J. Org. mond. San. I. Off. Rec. Wld. Hlth. Org., 1949
19 7

sanitaria en cada momento. El exceso de rigor, sobre entorpecer innecesariamente el tráfico y acarrear graves perjuicios económicos podría por su misma exageración provocar la inobservancia deliberada de las medidas de protección sanitaria y resultaría contraproducente.

Las autoridades sanitarias de cada país no deberían imponer medidas de mayor severidad que las estipuladas en el *Reglamento Sanitario Internacional* cuyas disposiciones representarían, por tanto, el máximo de rigor aplicable tanto en circunstancias normales como en situaciones de excepción.

Respecto a las disposiciones de carácter técnico que habría recoger de los convenios anteriores, el Comité de Expertos en Epidemiología Internacional y Cuarentena acordó que procedía conservar las declaraciones de sanidad de buques y aeronaves ³ que se volviera a examinar la oportunidad de continuar exigiendo a los viajeros certificados de inmunización puesto que muchos de los requisitos impuestos en esta materia desde la Segunda Guerra Mundial eran de severidad desproporcionada a su utilidad como medidas de protección que dado el perfeccionamiento de los servicios internacionales de información epidemiológica convenía suprimir las patentes de sanidad ⁴ y el trámite de visado consular de esos documentos y que en el *Reglamento* de la OMS debería conservarse la práctica de efectuar periódicamente inspecciones sanitarias de los buques. Esas inspecciones no consistirían en una simple búsqueda de ratas sino que tendrían carácter general e investigarían entre otras cosas la infestación producida por insectos.

La declaración sanitaria de un buque o una aeronave es una especie de diario sanitario de a bordo en el que se consignan los casos de enfermedades infecciosas entre los pasajeros y tripulantes durante el viaje y las defunciones sobre en las por esas causas así como otros datos relativos al buque o la aeronave y a los puertos o aeropuertos que toca. La declaración se presenta en el puerto o aeropuerto de llegada.

La patente de sanidad es un documento o pedimento por las autoridades sanitarias del puerto de partida, en el que se certifica el estado sanitario del puerto y del buque en el momento de emprender el viaje (véase página 202).

Una vez redactado por el Comité de Expertos el texto del nuevo Reglamento se inició una serie de laboriosas gestiones encaminadas a conseguir la conformidad de los interesados y la aprobación del documento. El proyecto de reglamento se presentó primero a los Estados Miembros de la OMS y a los organismos internacionales interesados y con las observaciones y sugerencias formuladas por unos y otros se sometió más tarde al estudio de un comité especial — establecido por la Tercera Asamblea Mundial de la Salud — que se reunió del 9 de abril al 15 de mayo de 1951. En la Cuarta Asamblea Mundial de la Salud la Comisión Especial del Reglamento Sanitario Internacional examinó del 19 al 21 de mayo de 1951 el proyecto de reglamento y preparó las resoluciones que sobre el particular habrían de someterse a la aprobación de la Asamblea. Esos minuciosos preparativos dieron por resultado el 25 de mayo de 1951 la aprobación unánime del Reglamento Sanitario Internacional (Reglamento No 2 de la OMS) por la Cuarta Asamblea Mundial de la Salud.

PROCEDIMIENTO Y TRÁMITES PARA LA ACEPTACIÓN, PRESENTACIÓN DE RESERVAS Y RECHAZAMIENTO

El Reglamento Sanitario Internacional presenta interés jurídico y técnico por lo que tiene de innovador en materia de convenios internacionales. La Constitución de la OMS autoriza a la Asamblea Mundial de la Salud para examinar y adoptar reglamentos sanitarios internacionales y además dispone que los Estados Miembros pueden ser parte en dichos reglamentos sin necesidad de depositar ningún instrumento de ratificación. En otros términos, si la Asamblea de la Salud — que está compuesta de representantes de todos los Estados Miembros de la OMS y se reúne a intervalos regulares — adopta un reglamento determinado, todos los Miembros quedan automáticamente obli-

gados por sus disposiciones a menos que notifiquen al Director General de la Organización en el plazo que se fije a esos efectos su proposito de rechazar el Reglamento o de formular reservas sobre su contenido. No es preciso que los Estados Miembros cumplan ningun otro trámite. Este procedimiento verdadera innovación de los metodos habitualmente seguidos para la conclusión de acuerdos internacionales resulta particularmente apropiado para aquellos que por su carácter tecnico no pueden quedar rezagados en la evolucion de las condiciones epidemiologicas y han de adaptarse a la experiencia adquirida a los adelantos científicos y al progreso de los metodos de lucha contra las enfermedades.

El plazo señalado para rechazar o formular reservas al Reglamento Sanitario Internacional fue de nueve meses desde el 11 de junio de 1951 fecha en que el Director General envio las oportunas notificaciones. Para los territorios de ultramar o alejados cuyas relaciones internacionales estuvieran encomendadas a un Estado Miembro el plazo fijado fue de dieciocho meses a partir de la indicada fecha siempre que se presentara al Director General la notificación correspondiente antes del 11 de marzo de 1952 día en que expiraba el periodo de nueve meses. El Reglamento entro en vigor el 1 de octubre de 1952.

Se incluyeron disposiciones especiales para los Estados que no siendo Miembros de la OMS o habiendo adquirido esa condicion despues de la entrada en vigor del Reglamento desearan ser partes en el. Respecto a estos ultimos se dispuso que los nuevos Miembros que no fueran partes en el Reglamento podrian notificar que lo rechazaban o formular reservas en el plazo de tres meses a partir de la fecha de su admisión en la OMS. Si transcurrido ese plazo no lo hubieran hecho quedarian obligados por las disposiciones del Reglamento. Los Estados no Miembros que notificaran su acepta-

ción al Director General quedarian obligados por el Reglamento al igual que los Estados Miembros desde la fecha de su entrada en vigor o a los tres meses de recibida la notificación por el Director General si la aceptación se comunicaba con posterioridad a esa fecha.

El procedimiento aplicable a las reservas fue objeto de particular atención. A ese respecto se concedieron también a la Asamblea de la Salud ciertas atribuciones para evitar las dificultades e inconvenientes que entrañaria el obtener su aceptación por todos y cada uno de los Estados Miembros de la OMS. Se dispuso que las reservas formuladas por los Estados carecerian de validez si no eran aceptadas por la Asamblea Mundial de la Salud que si bien solo niega esa aceptación cuando existen motivos fundados puede y debe hacerlo cuando la reserva presentada es a su juicio fundamentalmente incompatible con el carácter y la finalidad del Reglamento. Cuando no se acepta una reserva el Estado que la ha presentado no queda obligado por las disposiciones del Reglamento mientras no la retire. Es decir que si un Estado no retira una reserva que la Asamblea se niega a aceptar queda en la misma situación que si hubiera rechazado el Reglamento en su totalidad y sigue obligado por las disposiciones de cualquier convenio sanitario internacional o acuerdo análogo en que haya sido parte (Convenios Sanitarios Internacionales de 1903 1912 1926 1933 y 1944 Convencion Sanitaria Panamericana de 1905 y demás acuerdos convenciones y protocolos internacionales que el Reglamento ha venido a sustituir). En determinadas circunstancias la Asamblea de la Salud puede aceptar condicionalmente una reserva.

Aceptaciones reservas y rechazos

Tan sólo 25 de los 89 países que hubieran podido hacerlo se abstuvieron de aceptar el

Reglamento en su totalidad presentando reservas de alcance limitado. La general aprobación de las administraciones nacionales inauguró así, bajo los auspicios más felices un nuevo género de convenios sanitarios internacionales sobre el tráfico mundial de buques y aeronaves.

Las reservas formuladas por 25 gobiernos fueron debidamente examinadas por la Quinta Asamblea Mundial de la Salud. Se presentaron en total 73 reservas de las cuales la Asamblea rechazó 38.

En el Anexo 3 página 364 se indica la situación de los distintos Estados y territorios en relación con el Reglamento Sanitario Internacional tal como se presentaba el día 1 de octubre de 1956.

ALGUNAS DISPOSICIONES DEL REGLAMENTO

El Reglamento Sanitario Internacional trata entre otras muchas cuestiones de las notificaciones e informaciones epidemiológicas (vease página 350) de la organización sanitaria (en este apartado se enumeran las obligaciones contraídas por las autoridades de sanidad respecto a las condiciones sanitarias de los puertos y aeropuertos), de las medidas y formalidades sanitarias (se indican a este propósito las medidas que como máximo pueden adoptarse a la salida y a la llegada de los buques y las aeronaves y en los puertos y aeropuertos de tránsito y las que cabe tomar respecto al transporte internacional de mercancías equipaje y correspondencia) de las disposiciones especiales relativas a cada una de las enfermedades cuarentenables (vease más adelante) y de los documentos y tarifas sanitarios.⁵

Revisten particular interés para el presente estudio las disposiciones relativas a las distintas enfermedades cuarentenables y a la

peregrinación a La Meca. A continuación se resumen las más importantes.

Peste

La vacunación contra la peste no constituirá un requisito indispensable para la admisión de una persona en un territorio. Los Estados procurarán por todos los medios a su alcance, disminuir el peligro de propagación de la peste por los roedores y sus ectoparásitos y estar al corriente de la situación existente en todas las zonas donde se haya comprobado o se sospeche la existencia de peste de los roedores y, principalmente, en los puertos y aeropuertos. Durante la estancia de cualquier buque o aeronave en un puerto o aeropuerto apestando se tomarán medidas especiales para evitar la introducción de los roedores.

Los buques serán sometidos periódicamente a operaciones de desratización o se mantendrán constantemente en condiciones tales que sea insignificante el número de roedores a bordo. Los certificados de desratización y de exención de desratización cuya validez es por regla general de seis meses serán expedidos exclusivamente por las autoridades sanitarias de los puertos designados al efecto. En circunstancias epidemiológicas excepcionales podrá ordenarse la desratización de una aeronave si se sospecha la existencia de roedores a bordo.

Cualquier persona sospechosa que emprenda un viaje internacional desde una zona donde se haya declarado una epidemia de peste neumónica será sometida antes de su salida a seis días de aislamiento (a los fines del Reglamento se considera ese plazo como período de incubación de la peste) que comenzarán a contarse desde la fecha de su última exposición al contagio.

Se considerará infectado el buque o aeronave que tuviera a bordo un caso de peste humana o un roedor apestando. También se considerarán infectados los buques a cuyo

⁵ El texto completo del Reglamento se ha publicado en *Org. mund. Sal. d. Ser. Inform. Id. n. 1951* 41 y el del Reglamento Adicional se ha publicado en *Act. of Org. mund. Salud* 1955 64 84-86 1956 72 80-83.

bordo hubiera ocurrido algun caso de peste humana despues de transcurridos seis dias desde la fecha de embarque

Aun cuando no hubiera a bordo ningun caso de peste humana se considerarán sospechosos los buques donde haya ocurrido algun caso de la enfermedad dentro de los seis dias siguientes al embarque o donde se manifieste una mortalidad anormal de roedores sin causa conocida

Al arribo de un buque o de una aeronave infectados o sospechosos las autoridades sanitarias podran desinsectar a cualquier persona sospechosa y ponerla en observacion por un periodo de seis dias como máximo a partir de la fecha de su llegada. Podrán asimismo desinsectar y en caso necesario

desinfectar el equipaje de cualquier persona infectada o sospechosa cualquier otro objeto (colchones y ropa de cama usada por ejemplo) y cualquier parte del buque o de la aeronave que se considere contaminada. Cuando haya a bordo peste de roedores el buque será desratizado en cuarentena si fuera necesario. Lo mismo se bará con las aeronaves donde se encuentre algun roedor muerto de peste

Dejaran de considerarse infectados o sospechosos todos los buques y aeronaves en los cuales se hayan ejecutado fielmente las medidas exigidas por la autoridad sanitaria (es decir cuando todas las personas infectadas esten en tierra y aisladas y se hayan llevado a cabo las desinsectaciones



Equipo pa a la desinsectación de los buques

Icon: Organización del Servicio de Salud Pública de los Estados Unidos de América

Reglamento en su totalidad, presentando reservas de alcance limitado. La general aprobación de las administraciones nacionales inauguró así, bajo los auspicios más felices un nuevo género de convenios sanitarios internacionales sobre el tráfico mundial de buques y aeronaves.

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Revisten particular interés para el presente estudio las disposiciones relativas a las distintas enfermedades cuarentenables y a la

peregrinación a La Meca. A continuación se resumen las más importantes.

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Los buques serán sometidos periódicamente a operaciones de desratización o se mantendrán constantemente en condiciones tales que sea insignificante el número de roedores a bordo. Los certificados de desratización y de exención de desratización cuya validez es por regla general de seis meses serán expedidos exclusivamente por las autoridades sanitarias de los puertos designados al efecto. En circunstancias epidemiológicas excepcionales podrá ordenarse la desratización de una aeronave si se sospecha la existencia de roedores a bordo.

Cualquier persona sospechosa que emprenda un viaje internacional desde una zona donde se haya declarado una epidemia de peste neumónica será sometida antes de su salida a seis días de aislamiento (a los fines del Reglamento se considera ese plazo como periodo de incubación de la peste) que comenzarán a contarse desde la fecha de su última exposición al contagio.

Se considerará infectado el buque o aeronave que tuviera a bordo un caso de peste humana o un roedor apostado. También se considerarán infectados los buques a cuyo

⁵ El texto completo del Reglamento se ha publicado en *Org. m. d. Sal. d. Ser. Info. m. técn.* 1951 41 el del Reglamento Adicional se ha publicado en *Act. of O. S. mund. S. I. d.* 1955 64 84-86 1956 72 80-83.

Durante los cinco días que a los efectos del Reglamento se consideran como periodo de incubación del cólera podrá ser sometida a vigilancia cualquier persona que en viaje internacional proceda de un área local infectada y posea un certificado válido de vacunación hasta que haya transcurrido ese plazo desde su salida de dicha área si no poseyera ese certificado se la podrá aislar durante el indicado periodo. Ninguna persona podrá ser sometida a escobilladura rectal y el examen de heces sólo será obligatorio para las personas que en viaje internacional procedan de un área local infectada si desde su salida de ella no ha transcurrido un plazo igual al periodo de incubación del cólera y si presentan síntomas indicativos de la infección.

Se considerarán infectados los buques que a su arribo lleven a bordo un enfermo de cólera o si se hubiera declarado algún caso de la enfermedad durante los cinco días anteriores. Se considerarán sospechosos los buques a cuyo bordo se hubiera registrado un caso de cólera durante el viaje siempre que no se hubiera declarado ningún otro durante los cinco días anteriores a su arribo.

Se considerará infectada la aeronave que a su arribo lleve a bordo algún caso de cólera y se la considerará sospechosa si durante el viaje se ha declarado algún caso de cólera y el enfermo ha sido desembarcado en una escala anterior.

Los buques o aeronaves que provengan de un área local infectada o lleven a bordo una persona procedente de ella se considerarán indemnes si verificada la visita médica la autoridad sanitaria se cerciora de que no se ha producido ningún caso de cólera a bordo durante el viaje.

Al arribo de un buque o aeronave las autoridades sanitarias podrán aplicar las medidas siguientes:

1 Los pasajeros y tripulantes provistos de un certificado válido de vacunación contra

el cólera podrán ser sometidos a vigilancia hasta que hayan transcurrido cinco días desde la fecha del desembarco todas las demás personas que desembarquen podrán ser aisladas durante el mismo periodo.

2 El equipaje de las personas infectadas o sospechosas cualquier otro objeto (colchones y ropa de cama usada por ejemplo) y cualquier parte del buque o de la aeronave que se considere contaminada podrán ser sometidos a desinfección. Las reservas de agua que hubiera a bordo y que se consideren contaminadas podrán ser desinfectadas y evacuadas y podrá procederse a la desinfección de los depósitos.

3 Hasta que se haya practicado la desinfección no podrán verse ni descargarse deyecciones humanas, aguas servidas, residuos ni ninguna otra materia que se considere contaminada. La autoridad sanitaria será responsable de la eliminación inocua de esos desechos.

Podrán ser desinfectados también los buques o aeronaves sospechosos y los pasajeros o tripulantes que desembarquen podrán ser sometidos a vigilancia durante cinco días como máximo a partir de la fecha de arribo.

Dejarán de considerarse infectados o sospechosos los buques y aeronaves en los que se hayan ejecutado eficazmente las medidas que la autoridad sanitaria ordene de conformidad con las disposiciones antes citadas y se haya desembarcado y aislado a cualquier persona infectada.

Si a la llegada de un tren o de un vehículo de carretera se descubriera entre sus ocupantes algún caso de cólera los sospechosos podrán ser sometidos a vigilancia por un periodo máximo de cinco días a partir de la fecha de la llegada y podrán aplicarse medidas de desinfección en las condiciones ya indicadas.

Las existencias de alimentos a bordo de los buques y aeronaves infectados o sospechosos de los trenes y vehículos de carretera



Fumigación de un barco con cianuro

(Fotografía del Washington Post reproducida con autorización del Servicio de Salud Pública de los Estados Unidos de América)

desinfecciones y desratizaciones prescritas) o cuando la autoridad sanitaria se haya cerciorado de que la mortalidad anormal observada entre los roedores no se debe a la peste. Cumplidos esos requisitos el buque o la aeronave serán admitidos a libre plática. Los buques o aeronaves indemnes serán admitidos a su arribo a libre plática excepto cuando procedan de un área local infectada * en cuyo caso la autoridad sanitaria podrá someter a vigilancia a cualquier sospechoso que baje a tierra hasta que hayan transcurrido seis días como máximo, desde la fecha en que el buque o aeronave hubiera salido del área local infectada y exigir la destrucción de los roedores que hubiera a bordo. Esta última medida solo se tomará

en casos excepcionales y por razones bien fundadas que habrán de comunicarse por escrito al capitán del buque.

Si a la llegada de un tren o de un vehículo de carretera se descubre un caso de peste humana se podrá desalojar y aislar a la persona infectada y se aplicarán las medidas de desinsectación y en caso necesario de desinfección que la autoridad sanitaria estime procedentes dentro de los límites señalados por el Reglamento.

Colera

Si un viajero presenta un certificado válido de vacunación contra el cólera las autoridades sanitarias lo tendrán presente al aplicar las medidas prescritas por el Reglamento. Las normas aplicables a las vacunas anticoléricas en el territorio donde se haya efectuado la vacunación deberán ser aceptadas por todas las autoridades sanitarias.

El área local infectada se define en el Reglamento como a) un área local en la cual exista un caso no importado de peste cólera, fiebre amarilla o viruela o b) un área local en la cual exista peste entre los roedores bien en tierra o a bordo de embarcaciones portuarias o c) un área local en la que se manifiesta actividad del virus de la fiebre amarilla en animales vertebrados pero no en el hombre o d) un área local en la cual exista una epidemia de cólera o de fiebre recurrente.

un Reglamento Adicional por el que se modifican algunas de las primitivas disposiciones acerca de esa enfermedad. A continuación se resumen esas modificaciones.

Las administraciones sanitarias están obligadas a indicar a la OMS mediante la oportuna notificación la zona o zonas de su territorio que reúnen condiciones de receptividad para la fiebre amarilla y a informarla tan pronto como se produzca cualquier alteración de esas condiciones. La Organización transmite esos datos a todas las administraciones sanitarias.

Se exigirá la vacunación contra la fiebre amarilla a todas las personas que desde un área local infectada⁷ emprendan un viaje internacional con destino a una zona receptiva a la enfermedad. Cuando esas personas posean un certificado de vacunación que todavía no tenga validez podrá permitirseles que emprendan el viaje pero a su llegada podrán ser aisladas hasta que el certificado adquiera validez o por un periodo máximo de seis días (el periodo de incubación de la enfermedad) a contar desde el último en que hubieran estado expuestas a la infección si este último plazo venciera antes que el primero. Ninguna persona en posesión de un certificado válido será tratada como sospechosa aun cuando proceda de un área local infectada. Todos los empleados de los aeropuertos situados en áreas locales infectadas y los tripulantes de las aeronaves que utilizan esos aeropuertos deberán estar provistos de un certificado válido de vacunación contra la fiebre amarilla.

Las autoridades sanitarias de las zonas receptoras a la fiebre amarilla podrán exigir el aislamiento de cualquier persona que en viaje internacional llegue a la zona procedente de un área local infectada y no posea un certificado de vacunación válido. El aislamiento durará hasta que el certificado haya adquirido validez o seis días como

máximo a partir de la última fecha en que la persona estuvo expuesta a la infección si el primer plazo fuera más largo.

Las aeronaves que desde un aeropuerto situado en un área local infectada emprendan vuelo hacia una zona receptiva a la enfermedad serán desinsectadas bajo la vigilancia de la autoridad sanitaria inmediatamente antes de su salida pero con tiempo suficiente para que no haya retrasos. Los Estados interesados podrán dar por buenas las desinsectaciones practicadas durante el vuelo en las partes de la aeronave donde la operación sea factible en esas condiciones. Se desinsectará asimismo cualquier barco o aeronave que procedente de un puerto o aeropuerto donde todavía exista *Aedes aegypti* se dirija a otro donde el vector haya sido erradicado.

Los buques se considerarán infectados si a su arribo llevan a bordo algún caso de fiebre amarilla o si se ha declarado la enfermedad durante el viaje. Se considerarán sospechosos cuando arriben antes de transcurridos seis días desde su partida de un área local infectada o si transcurridos menos de 30 días desde su salida de una de esas áreas la autoridad sanitaria encuentra a bordo *Aedes aegypti*. Las aeronaves se considerarán infectadas si ocurre a bordo algún caso de fiebre amarilla y sospechosas si la autoridad sanitaria no considera satisfactoria la desinsectación practicada en la forma descrita y encuentra a bordo mosquitos vivos.

Los pasajeros y tripulantes de los buques y aeronaves infectados o sospechosos que desembarquen en una zona receptiva a la fiebre amarilla y no posean un certificado válido de vacunación contra la enfermedad podrán ser aislados hasta que el certificado adquiera validez o por un periodo máximo de seis días desde el último en que hayan estado expuestos a la infección si este último plazo fuera menor que el primero. Los buques y aeronaves infectados o sospechosos podrán ser inspeccionados a su arribo y en caso necesario se aplicarán las

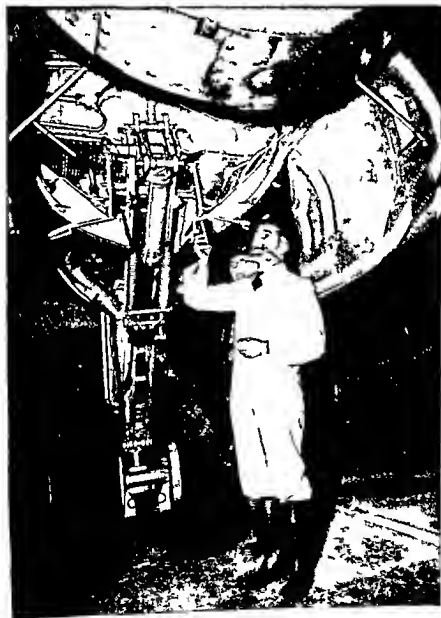
⁷ Véanse los incisos 1 y 2 de la nota 6, página 348.

entre cuyos ocupantes se haya descubierto un caso de cólera, o de cualquier medio de locomoción procedente de un área local infectada deberán ser objeto de ciertas precauciones. La autoridad sanitaria podrá por ejemplo, retirar o prohibir que se descarguen las bebidas pescados mariscos frutas y legumbres que hayan de consumirse sin previa cocción a menos que estén envasados en recipientes hermeticos y que no haya motivo

para considerarlos contaminados. Una vez retirados esos alimentos o bebidas se tomarán las medidas necesarias para su eliminación inocua.

Fiebre amarilla

Las disposiciones del Reglamento Sanitario Internacional en materia de fiebre amarilla han sido las más debatidas. La Octava Asamblea Mundial de la Salud adoptó



Desinsectación de una aeronave por aerosoles rociadura del compartimiento de ocultación del tren de aterrizaje

Con autorización de la British Overseas Airways Corporation (Whittingham Sir Harold E., 1954, *J. Roy. Inst. Publ. Hlth.* 17: 110)

un Reglamento Adicional por el que se modifican algunas de las primitivas disposiciones acerca de esa enfermedad. A continuación se resumen esas modificaciones.

Las administraciones sanitarias están obligadas a indicar a la OMS mediante la oportuna notificación la zona o zonas de su territorio que reúnen condiciones de receptividad para la fiebre amarilla y a informarla tan pronto como se produzca cualquier alteración de esas condiciones. La Organización transmite esos datos a todas las administraciones sanitarias.

Se exigirá la vacunación contra la fiebre amarilla a todas las personas que desde un área local infectada¹ emprendan un viaje internacional con destino a una zona receptiva a la enfermedad. Cuando esas personas posean un certificado de vacunación que todavía no tenga validez podrá permitirseles que emprendan el viaje pero a su llegada podrán ser aisladas hasta que el certificado adquiera validez o por un período máximo de seis días (el período de incubación de la enfermedad) a contar desde el último en que hubieran estado expuestas a la infección si este último plazo venciera antes que el primero. Ninguna persona en posesión de un certificado válido será tratada como sospechosa aun cuando proceda de un área local infectada. Todos los empleados de los aeropuertos situados en áreas locales infectadas y los tripulantes de las aeronaves que utilicen esos aeropuertos deberán estar provistos de un certificado válido de vacunación contra la fiebre amarilla.

Las autoridades sanitarias de las zonas receptoras a la fiebre amarilla podrán exigir el aislamiento de cualquier persona que en viaje internacional llegue a la zona procedente de un área local infectada y no posea un certificado de vacunación válido. El aislamiento durará hasta que el certificado haya adquirido validez o seis días como

máximo a partir de la última fecha en que la persona estuvo expuesta a la infección si el primer plazo fuera más largo.

Las aeronaves que desde un aeropuerto situado en un área local infectada emprendan vuelo hacia una zona receptiva a la enfermedad serán desinsectadas bajo la vigilancia de la autoridad sanitaria inmediatamente antes de su salida pero con tiempo suficiente para que no haya retrasos. Los Estados interesados podrán dar por buenas las desinsectaciones practicadas durante el vuelo en las partes de la aeronave donde la operación sea factible en esas condiciones. Se desinsectará asimismo cualquier barco o aeronave que procedente de un puerto o aeropuerto donde todavía exista *Aedes aegypti* se dirija a otro donde el vector haya sido erradicado.

Los buques se considerarán infectados si a su arribo llevan a bordo algún caso de fiebre amarilla o si se ha declarado la enfermedad durante el viaje. Se considerarán sospechosos cuando arriben antes de transcurridos seis días desde su partida de un área local infectada o si transcurridos menos de 30 días desde su salida de una de esas áreas la autoridad sanitaria encuentra a bordo *Aedes aegypti*. Las aeronaves se considerarán infectadas si ocurre a bordo algún caso de fiebre amarilla y sospechosas si la autoridad sanitaria no considera satisfactoria la desinsectación practicada en la forma descrita y encuentra a bordo mosquitos vivos.

Los pasajeros y tripulantes de los buques y aeronaves infectados o sospechosos que desembarquen en una zona receptiva a la fiebre amarilla y no posean un certificado válido de vacunación contra la enfermedad podrán ser aislados hasta que el certificado adquiera validez o por un período máximo de seis días desde el último en que hayan estado expuestos a la infección si este último plazo fuera menor que el primero. Los buques y aeronaves infectados o sospechosos podrán ser inspeccionados a su arribo y en caso necesario se aplicarán las

¹Véanse los incisos 1 y 2 d) de la 6.ª págs. 348

entre cuyos ocupantes se haya descubierto un caso de colera o de cualquier medio de locomoción procedente de un área local infectada deberán ser objeto de ciertas precauciones. La autoridad sanitaria podrá, por ejemplo, retirar o prohibir que se descarguen las bebidas, pescados, mariscos, frutas y legumbres que hayan de consumirse sin previa cocción a menos que estén envasados en recipientes hermeticos y que no haya motivo

para considerarlos contaminados. Una vez retirados esos alimentos o bebidas se tomarán las medidas necesarias para su eliminación inocua.

Fiebre amarilla

Las disposiciones del Reglamento Sanitario Internacional en materia de fiebre amarilla han sido las más debatidas. La Octava Asamblea Mundial de la Salud adopto



Desinsección de una aeronave por aerosoles rociadura del compartimiento de ocultación del tren de aterrizaje

Con autorización de la British Overseas Airways Corporation (Whittingham S. II vol. E. 1954) Joy & Publ. Film 17 110)

un Reglamento Adicional por el que se modifican algunas de las primitivas disposiciones acerca de esa enfermedad. A continuación se resumen esas modificaciones.

Las administraciones sanitarias están obligadas a indicar a la OMS mediante la oportuna notificación la zona o zonas de su territorio que reúnen condiciones de receptividad para la fiebre amarilla y a informarla tan pronto como se produzca cualquier alteración de esas condiciones. La Organización transmite esos datos a todas las administraciones sanitarias.

Se exigirá la vacunación contra la fiebre amarilla a todas las personas que desde un área local infectada⁷ emprendan un viaje internacional con destino a una zona receptiva a la enfermedad. Cuando esas personas posean un certificado de vacunación que todavía no tenga validez podrá permitirseles que emprendan el viaje pero a su llegada podrán ser aisladas hasta que el certificado adquiera validez o por un período máximo de seis días (el período de incubación de la enfermedad) a contar desde el último en que hubieran estado expuestas a la infección si este último plazo venciera antes que el primero. Ninguna persona en posesión de un certificado válido será tratada como sospechosa, aun cuando proceda de un área local infectada. Todos los empleados de los aeropuertos situados en áreas locales infectadas y los tripulantes de las aeronaves que utilicen esos aeropuertos deberán estar provistos de un certificado válido de vacunación contra la fiebre amarilla.

Las autoridades sanitarias de las zonas receptoras a la fiebre amarilla podrán exigir el aislamiento de cualquier persona que en viaje internacional llegue a la zona procedente de un área local infectada y no posea un certificado de vacunación válido. El aislamiento durará hasta que el certificado haya adquirido validez o seis días como

máximo a partir de la última fecha en que la persona estuvo expuesta a la infección si el primer plazo fuera más largo.

Las aeronaves que desde un aeropuerto situado en un área local infectada emprendan vuelo hacia una zona receptiva a la enfermedad serán desinsectadas bajo la vigilancia de la autoridad sanitaria inmediatamente antes de su salida pero con tiempo suficiente para que no haya retrasos. Los Estados interesados podrán dar por buenas las desinsectaciones practicadas durante el vuelo en las partes de la aeronave donde la operación sea factible en esas condiciones. Se desinsectará asimismo cualquier barco o aeronave que procedente de un puerto o aeropuerto donde todavía exista *Aedes aegypti* se dirija a otro donde el vector haya sido erradicado.

Los buques se considerarán infectados si a su arribo llevan a bordo algún caso de fiebre amarilla o si se ha declarado la enfermedad durante el viaje. Se considerarán sospechosos cuando arriben antes de transcurridos seis días desde su partida de un área local infectada o si transcurridos menos de 30 días desde su salida de una de esas áreas la autoridad sanitaria encuentra a bordo *Aedes aegypti*. Las aeronaves se considerarán infectadas si ocurre a bordo algún caso de fiebre amarilla y sospechosas si la autoridad sanitaria no considera satisfactoria la desinsectación practicada en la forma descrita y encuentra a bordo mosquitos vivos.

Los pasajeros y tripulantes de los buques y aeronaves infectados o sospechosos que desembarquen en una zona receptiva a la fiebre amarilla y no posean un certificado válido de vacunación contra la enfermedad podrán ser aislados hasta que el certificado adquiera validez o por un período máximo de seis días desde el último en que hayan estado expuestos a la infección si este último plazo fuera menor que el primero. Los buques y aeronaves infectados o sospechosos podrán ser inspeccionados a su arribo y en caso necesario se aplicarán las

medidas adecuadas para destruir los mosquitos de *Aedes aegypti* que haya a bordo. En las zonas receptivas a la fiebre amarilla, se podrá exigir además que el buque permanezca fondeado por lo menos a 400 metros de tierra hasta que se ejecuten dichas operaciones. Dejarán de considerarse infectados o sospechosos los buques y aeronaves de donde se haya desembarcado y aislado a las personas infectadas y en los que se hayan aplicado las medidas prescritas por las autoridades sanitarias. A los buques y aeronaves indemnes que procedan de áreas locales infectadas podrán aplicárseles las mismas medidas de inspección y de destrucción de los mosquitos *Aedes aegypti* que pudiera haber a bordo, en las zonas receptivas a la fiebre amarilla se podrá exigir que el buque permanezca fondeado a 400 metros de tierra hasta que se hayan efectuado esas operaciones.

Las aeronaves que hayan sido debidamente desinfectadas podrán aterrizar en cualquier aeropuerto sanitario de un territorio pero en las zonas receptivas a la fiebre amarilla, las aeronaves procedentes de áreas locales infectadas sólo podrán hacerlo en los aeropuertos que el Estado designe al efecto.

Los trenes y los vehículos de carretera que procedentes de un área local infectada, lleguen a una zona receptiva a la fiebre amarilla podrán ser desinfectados y los pasajeros procedentes de un área local infectada y que no presenten un certificado válido de vacunación podrán ser aislados en las condiciones indicadas anteriormente.

En las zonas receptivas a la fiebre amarilla los periodos de aislamiento prescritos en el Reglamento se cumplirán en locales inaccesibles a los mosquitos.

Viruela

Cualquier persona que en el curso de un viaje internacional no presente pruebas suficientes de estar inmunizada por un ataque

anterior de viruela ni posea un certificado válido de vacunación contra la enfermedad podrá ser vacunada y, si no se dejase vacunar, sometida a vigilancia hasta que hayan transcurrido 14 días como máximo (periodo de incubación de la viruela) desde que salió del último territorio visitado. Cualquier persona que en los 14 días anteriores a su llegada haya visitado un área infectada y que en opinión de la autoridad sanitaria no este suficientemente protegida por la vacunación o por un ataque anterior de viruela podrá ser vacunada sometida a vigilancia o ambas cosas y si no se dejase vacunar, podrá ser aislada. El periodo de vigilancia o de aislamiento no podrá exceder de 14 días a partir de la fecha en que hubiera salido del área local infectada. Cualquier certificado válido de vacunación contra la viruela constituirá prueba suficiente de protección contra la enfermedad.

Los buques y las aeronaves se considerarán infectados si a su arribo hubiera a bordo un caso de viruela o se hubiera declarado alguno durante el viaje. En todos los demás casos los buques y aeronaves se considerarán indemnes y serán admitidos a libre plática aun cuando procedan de un área local infectada o haya sospechosos a bordo sin perjuicio de que al desembarcar se apliquen a estos las medidas previstas para los buques infectados.

Al arribo de los buques o aeronaves infectados la autoridad sanitaria ofrecerá la vacunación a todas las personas que hubiera a bordo y que a su juicio no estuviesen suficientemente protegidas contra la viruela. Procederá a la desinfección del equipaje de todas las personas infectadas y de cualquier otro objeto o parte del buque o aeronave que puedan considerarse contaminados y ordenará si lo juzga oportuno el aislamiento o la vigilancia de cualquier persona que desembarque durante el periodo máximo de 14 días a contar desde la fecha de la última exposición al contagio. Al fijar la duración

de ese periodo la autoridad sanitaria tendrá en cuenta las vacunaciones a que anteriormente se hubieran sometido esas personas y la posibilidad de que hayan estado expuestas a la infección. Los buques y aeronaves continuarán considerándose infectados hasta que todos los enfermos hayan desembarcado y se apliquen rigurosamente las medidas indicadas en la forma que ordene la autoridad sanitaria. Cumplidos esos requisitos, el buque o la aeronave serán admitidos a libre plática.

Si a la llegada de un tren o de un vehiculo de carretera se descubre entre sus ocupantes un caso de viruela, se desembarcará al enfermo y se aplicarán las medidas previstas para los buques y aeronaves infectados, computándose el periodo de vigilancia o de aislamiento desde la fecha de la llegada y desinfectándose cualquier parte del tren o del vehiculo de carretera que se considere contaminada.

Tifus

No se exigirá la vacunación contra el tifus como condición indispensable para la admisión de una persona en un territorio.

Todas las personas que efectuen un viaje internacional partiendo de las áreas locales infectadas y que a juicio de la autoridad sanitaria puedan transmitir el tifus serán desinfectadas a su salida. Los vestidos que lleven puestos sus equipajes y todos los demás objetos susceptibles de transmitir la infección serán asimismo desinfectados y en caso de necesidad desinfectados.

Si la autoridad del lugar de llegada lo juzga necesario, las personas que en el curso de un viaje internacional hayan visitado un área local infectada durante los 14 días anteriores (espacio de tiempo que se considera como periodo de incubación del tifus) podrán ser desinfectadas y sometidas a vigilancia durante 14 días como máximo a partir de la fecha en que se hubiera practi-

cado la anterior desinsectación. Los vestidos que dichas personas lleven puestos su equipaje y todos los demás objetos susceptibles de transmitir la enfermedad podrán ser desinfectados y en caso necesario desinfectados.

Los buques y las aeronaves se considerarán indemnes aun cuando lleven a bordo alguna persona infectada, pero esta podrá ser desembarcada y aislada y cualquier sospechoso desinfectado. Además podrán desinsectarse y desinfectarse los locales que hayan ocupado las personas infectadas o sospechosas, las ropas que aquéllas o estas lleven puestas, su equipaje y cualquier otro objeto susceptible de transmitir la infección. Idénticas medidas podrán aplicarse cuando se descubra un caso de tifus entre los ocupantes de un tren o de un vehiculo de carretera.

Fiebre recurrente

Los artículos relativos al tifus se aplican también a la fiebre recurrente con la salvedad de que la vigilancia no podrá prolongarse más de 8 días (periodo de incubación de la enfermedad) a partir de la fecha en que se hubiera practicado la desinsectación.

La peregrinación a La Meca

La peregrinación a La Meca que año tras año atrae al Hedjaz a centenares de miles de peregrinos musulmanes, figura en lugar destacado entre los movimientos y reuniones periódicas de grandes multitudes y ha presentado siempre numerosos riesgos para la salud. Su importancia para la propagación de las enfermedades infecciosas se manifestó de manera alarmante en 1865, año en el que se declaró en La Meca una epidemia de cólera y la desbandada general de los peregrinos propagó por doquier la enfermedad. La intervención del peregrinaje en la propagación de las enfermedades fue por esa razón una de las principales cues-

tiones debatidas en la Tercera Conferencia Sanitaria Internacional de 1866 (vease la página 301), y no ha dejado de ser desde entonces motivo de preocupacion internacional

Cuando se redactó el Reglamento Sanitario Internacional se juzgó conveniente incluir en su texto ciertas medidas especiales para el control sanitario del peregrinaje a La Meca que, sin embargo, no quedaba excluido de sus principales disposiciones. Se prepararon, en consecuencia dos anexos que tratan respectivamente del control sanitario del tránsito de peregrinos hacia o procedentes del Hedjaz durante la temporada del peregrinaje, y de las normas de higiene para los buques de peregrinos y las aeronaves que los transportan

La Novena Asamblea Mundial de la Salud celebrada en mayo de 1956, acordó derogar las secciones del Reglamento que trataban específicamente de las peregrinaciones a La Meca. Se fundaba esa decision en el informe presentado por un grupo de expertos en cuarentena que visitó Yeda en marzo de 1956 y en la opinion emitida por el Comité de la Cuarentena Internacional. A juicio de la Asamblea la administracion sanitaria de la Arabia Saudita dispone ya de medios suficientes para hacer frente a los problemas sanitarios que las peregrinaciones plantean dentro de su territorio

Previendo que quizá fuera necesario aplicar de cuando en cuando medidas especiales a los peregrinos la Asamblea de la Salud adoptó un Reglamento Adicional^a en el que se especifica que esas medidas serán las mismas que se apliquen a los demás viajeros internacionales a los emigrantes y trabajadores ambulantes y temporeros y a las «personas que toman parte en reuniones periódicas de masas». Los Estados que quedan obligados por las disposiciones del Reglamento Adicional se comprometen a exigir la aplicación de normas adecuadas de

higiene y de instalacion en los buques y aeronaves donde viajen personas que hayan de tomar parte en esas reuniones sin que dichas normas puedan ser menos rigurosas que las previstas en el Reglamento Sanitario Internacional antes de la entrada en vigor del Reglamento Adicional. Este comenzará a regir el 1 de enero de 1957

SERVICIOS ENCARGADOS DE LA APLICACION DEL REGLAMENTO

Servicios de informacion epidemiologica

La eficaz aplicacion del Reglamento Sanitario Internacional depende de la difusion de informaciones completas fidedignas y actuales sobre la aparición de enfermedades cuarentenables en cualquier Estado o territorio. El Reglamento impone a las administraciones sanitarias la obligacion ineludible de comunicar a la OMS — por correo aereo y en ciertos casos por telegrama — cuantos casos de enfermedades cuarentenables se produzcan en su jurisdiccion y la de enviar informes suplementarios si la enfermedad se prolonga. La Organizacion está a su vez, obligada a transmitir esas informaciones a las demás administraciones sanitarias

El buen funcionamiento de este servicio exige que se cumplan tres condiciones: 1) que los Estados transmitan sin perdida de tiempo a la Organizacion las informaciones epidemiológicas relacionadas con la presencia de enfermedades cuarentenables en sus territorios; 2) que la OMS disponga de un sistema eficaz para recibir, compilar y transmitir rápidamente esas informaciones a todos los Estados; y 3) que estos, sin excepción, reciban y utilicen esas informaciones en la medida en que lo estimen conveniente y necesario

Por lo que se refiere al primero de esos requisitos hay que señalar que la Organizacion solo puede dar curso a las notificaciones de carácter oficial que recibe de los servicios gubernamentales y no puede dar crédito a las informaciones publicadas por la prensa

^a *Act of Org. mund. Salud 1956 72 80*

En la Oficina Central de Correos de Ginebra funciona un servicio especialmente encargado de recibir y transmitir los partes de la Sede de la OMS. Las informaciones importantes son también difundidas por la radio y el Relevé epidemiológico hebdomadario.



En los informes de procedencia no oficial aun cuando muchas veces las primeras noticias de los brotes epidémicos se obtengan por esos conductos y se confirmen luego oficialmente. Si bien es verdad que esos retrasos en la notificación de las enfermedades están a veces justificados muchos Estados podrían mejorar la colaboración que en estas cuestiones prestan a la OMS y por conducto de ella a los demás países.

Los servicios de información y notificación epidemiológica de la OMS tienen oficinas en Ginebra, Singapur, Washington y Alejandría. Los informes urgentes apenas recibidos se transmiten a todo el mundo en una serie

de comunicados que se radian diariamente desde Ginebra (en ocho longitudes de onda para la emisión inglesa y en cuatro para la francesa) a intervalos menos frecuentes desde Singapur y Alejandría y todos los días por doce estaciones que abarcan un extenso sector de la zona del océano Índico y del Pacífico occidental. En el mapa 7 figuran las estaciones emisoras que transmiten en radiotelegrafía los partes epidemiológicos de la OMS.

Una vez confirmados los datos consignados en esos partes se dan a conocer con otras informaciones sobre la aplicación del Reglamento en sendas publicaciones semanales editadas en Ginebra, Singapur, Washington

tiones debatidas en la Tercera Conferencia Sanitaria Internacional de 1866 (véase la página 301) y no ha dejado de ser desde entonces motivo de preocupación internacional.

Cuando se redactó el Reglamento Sanitario Internacional se juzgó conveniente incluir en su texto ciertas medidas especiales para el control sanitario del peregrinaje a La Meca que sin embargo, no quedaba excluido de sus principales disposiciones. Se prepararon en consecuencia dos anexos que tratan, respectivamente del control sanitario del tránsito de peregrinos hacia o procedentes del Hedjaz, durante la temporada del peregrinaje, y de las normas de higiene para los buques de peregrinos y las aeronaves que los transportan.

La Novena Asamblea Mundial de la Salud, celebrada en mayo de 1956 acordó derogar las secciones del Reglamento que trataban específicamente de las peregrinaciones a La Meca. Se fundaba esa decisión en el informe presentado por un grupo de expertos en cuarentena que visitó Yeda en marzo de 1956 y en la opinión emitida por el Comité de la Cuarentena Internacional. A juicio de la Asamblea la administración sanitaria de la Arabia Saudita dispone ya de medios suficientes para hacer frente a los problemas sanitarios que las peregrinaciones plantean dentro de su territorio.

Previendo que quizá fuera necesario aplicar de cuando en cuando medidas especiales a los peregrinos la Asamblea de la Salud adoptó un Reglamento Adicional* en el que se especifica que esas medidas serán las mismas que se apliquen a los demás viajeros internacionales a los emigrantes y trabajadores ambulantes y temporeros y a las «personas que toman parte en reuniones periódicas de masas». Los Estados que quedan obligados por las disposiciones del Reglamento Adicional se comprometen a exigir la aplicación de normas adecuadas de

higiene y de instalación en los buques y aeronaves donde viajen personas que hayan de tomar parte en esas reuniones sin que dichas normas puedan ser menos rigurosas que las previstas en el Reglamento Sanitario Internacional antes de la entrada en vigor del Reglamento Adicional. Este comenzará a regir el 1 de enero de 1957.

SERVICIOS ENCARGADOS DE LA APLICACION DEL REGLAMENTO

Servicios de información epidemiológica

La eficaz aplicación del Reglamento Sanitario Internacional depende de la difusión de informaciones completas fidedignas y actuales sobre la aparición de enfermedades cuarentenables en cualquier Estado o territorio. El Reglamento impone a las administraciones sanitarias la obligación ineludible de comunicar a la OMS — por correo aéreo y en ciertos casos por telegrama — cuantos casos de enfermedades cuarentenables se produzcan en su jurisdicción y la de enviar informes suplementarios si la enfermedad se prolonga. La Organización está a su vez, obligada a transmitir esas informaciones a las demás administraciones sanitarias.

El buen funcionamiento de este servicio exige que se cumplan tres condiciones: 1) que los Estados transmitan sin pérdida de tiempo a la Organización las informaciones epidemiológicas relacionadas con la presencia de enfermedades cuarentenables en sus territorios; 2) que la OMS disponga de un sistema eficaz para recibir, compilar y transmitir rápidamente esas informaciones a todos los Estados; y 3) que estos sin excepción, reciban y utilicen esas informaciones en la medida en que lo estimen conveniente y necesario.

Por lo que se refiere al primero de esos requisitos hay que señalar que la Organización sólo puede dar curso a las notificaciones de carácter oficial que recibe de los servicios gubernamentales y no puede dar crédito a las informaciones publicadas por la prensa

El *Relevé épidémiologique hebdomadaire* ha llegado a formar parte integrante del sistema de aplicación del Reglamento Sanitario Internacional. Las informaciones que contiene revisten la mayor importancia para todos los gobiernos y para cuantos se preocupan por la aplicación de las medidas de cuarentena; en consecuencia la publicación se envía a las autoridades sanitarias a los servicios de cuarentena y a otras entidades y personas interesadas de todo el mundo.

El Comité de la Cuarentena Internacional

Entre las disposiciones del Reglamento Sanitario Internacional hay una destinada a resolver cualquier duda o discrepancia de criterios que pudiera surgir respecto a su aplicación. En virtud de esa disposición el Director General queda autorizado para entender en los casos de duda o controversia y para resolverlos si fuera posible sometiéndose la cuestión al estudio y arbitraje del Comité competente o de otro órgano de la OMS si por este procedimiento no se pudiera llegar a un acuerdo. Con ese objeto se estableció el Comité de la Cuarentena Internacional que además de resolver las controversias fue encargado de desempeñar otras funciones en particular las de efectuar anualmente un análisis de la aplicación del Reglamento y de las demás disposiciones pertinentes recomendar su modificación cuando así procediera y la adopción en caso necesario de reglamentos adicionales y en general de interpretar el Reglamento y resolver los problemas relacionados con su aplicación.

APLICACIÓN DEL REGLAMENTO Y SUS RESULTADOS

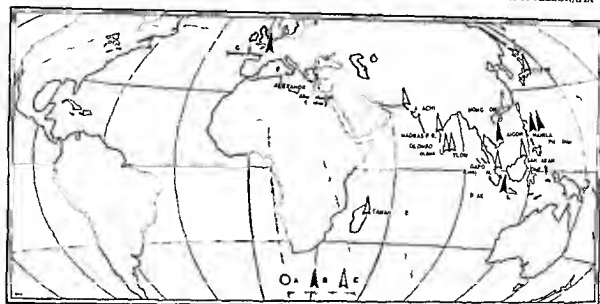
Es verdad que el Reglamento Sanitario Internacional supone un avance considerable en los métodos de cuarentena pero como ocurre con casi todas las innovaciones ha de

transcurrir algún tiempo antes de que quede totalmente integrado en las prácticas usuales. Los resultados obtenidos en los cuatro primeros años de vigencia del Reglamento pueden considerarse satisfactorios y el espíritu con que se aplican sus disposiciones es una prueba elocuente del deseo de mutua cooperación, comprensión y buena voluntad que anima a los países interesados. Las numerosas cuestiones suscitadas han obligado al Director General a sostener una voluminosa correspondencia y en muchos casos a prestar asesoramiento han motivado debates, recomendaciones y consejos del Comité de la Cuarentena Internacional y a veces la intervención de la Asamblea de la Salud. Con el transcurso del tiempo sin embargo las dificultades van siendo menores y la aplicación cotidiana del Reglamento se va simplificando. Circunstancia significativa es que ninguno de los problemas planteados ha dado lugar a una controversia que tuviera que ser resuelta por el Comité de la Cuarentena Internacional.

Durante el primer año la aplicación del Reglamento fue sin duda alguna muy difícil tanto para las autoridades nacionales como para las locales, las compañías de transporte y los mismos viajeros. Hubo que cambiar procedimientos y prácticas que habían venido observándose durante un siglo o más, modificar o suprimir medidas que antes se estimaban necesarias para proteger a los países contra la introducción de enfermedades cuarentenables y por último examinar y revisar casi todas las legislaciones nacionales sobre la materia.

La aplicación de las disposiciones técnicas relativas a las distintas enfermedades ha tropezado con pocas dificultades en la mayoría de los casos. Las cuestiones suscitadas se referían a la interpretación de definiciones, a los trámites de notificación e información epidemiológica y a los documentos sanitarios.

Cabe decir en términos generales que los problemas más frecuentes son los relacionados



A = Zonas situadas dentro del radio de la emisora de Genève Prangins

B = Emisaras que transmiten diariamente

C = Emisoras que transmiten una a dos veces por semana

y Alejandria que se envian por correo
aereo a las administraciones sanitarias

La lista de informes y notificaciones que de conformidad con lo dispuesto en el Reglamento deben enviarse a la OMS es muy larga puesto que comprende 29 epígrafes, cada uno de los cuales debe ser objeto según los casos de una sola comunicación o de varias espaciadas a intervalos regulares. Aunque no todas las administraciones sanitarias han alcanzado el mismo grado de perfeccionamiento y no es posible por tanto exigirles a todas que presenten regularmente los datos solicitados, hay algunas que todavía no colaboran con la Organización en la medida que cabría esperar del desarrollo alcanzado por sus servicios. Se han registrado sin embargo, notables progresos y es de suponer que cuando el transcurso del tiempo y los cambios registrados en la situación de las enfermedades cuarentenables impongan la revisión del Reglamento disminuirá el trabajo administrativo que supone facilitar todas las notificaciones e informes que en la actualidad se exigen.

El órgano donde la OMS da a conocer todas las notificaciones epidemiológicas necesarias es el Informe epidemiológico semanal * cuya publicación inició la Sociedad de Naciones hace treinta y un años. Aparte las notificaciones relativas a las enfermedades cuarentenables, el Informe publica otras comunicaciones sobre la aplicación de las disposiciones sanitarias internacionales e informes basados en estadísticas recientes sobre la incidencia de algunas enfermedades no cuarentenables como la gripe y la polio mielitis cuando su prevalencia puede ser motivo de preocupación internacional. Los suplementos del Informe contienen útiles resúmenes de determinadas informaciones relativas al Reglamento como la relación de las medidas de cuarentena y los certificados de vacunación exigidos por cada país según los datos comunicados a la OMS * o las tarifas sanitarias vigentes a partir de una fecha dada.¹⁰

Rel et épidémiologique à but médical *Weekly Epidemiological Record*

^b *Wkly epidem Rec* 1955 2 Sept 1

Rel. e epidem. h. bol. Italy epidem. Rec. 1959 46 Suppl 5

Las disposiciones del Reglamento en materia de fiebre amarilla son las que han suscitado mayores dificultades. Como ya se ha dicho la Octava Asamblea Mundial de la Salud aprobó un Reglamento Adicional que modifica los artículos relativos a la fiebre amarilla del Reglamento Sanitario Internacional y la Novena aceptó previo examen las reservas formuladas por algunos gobiernos a las nuevas disposiciones que entran en vigor el 1 de octubre de 1956.

En su informe anual sobre la aplicación del Reglamento el Director General incluye un resumen de los datos publicados por la OMS en el curso del año respecto a las notificaciones de enfermedades cuarentenables declaradas a bordo de buques y aeronaves. Los casos de enfermedades cuarentenables registrados a bordo de un buque se notifican a la Organización que telegrafía directamente la información a las autoridades sanitarias del país donde está situado el próximo puerto de escala y la da a conocer en los partes epidemiológicos y en el *Relevé épidémiologique hebdomadaire* — *Weekly Epidemiological Record* seminario bilingüe. En cumplimiento de las disposiciones tomadas de acuerdo con la Estación de Información Epidemiológica de Singapur cuando el barco va a tardar menos de cinco días en llegar al puerto siguiente no suelen notificarse por ese procedimiento los casos registrados en la región. En tales condiciones la notificación incumbe a la autoridad sanitaria del puerto donde se desembarca al enfermo.

Entre el 1 de octubre de 1952 y el 30 de junio de 1955 se recibieron notificaciones sobre 45 buques a bordo de los cuales se habían declarado enfermedades cuarentenables o se sospechaba su presencia. En doce casos la enfermedad notificada era el cólera en veintiocho la viruela y en cinco el tífus. Muchas de las notificaciones no llegaron sin embargo a confirmarse y en varios casos se modificó ulteriormente el diagnóstico formulado. No se recibió ninguna notificación

de buques infectados de peste, fiebre amarilla ni fiebre recurrente.

En 1950 la OMS recibió la primera notificación de una aeronave infectada, un pasajero procedente de Londres que durante el viaje había desembarcado en varios aeropuertos del Extremo Oriente falleció de viruela a los pocos días de su llegada a Calcuta.

Todos los años el Comité de la Cuarentena Internacional después de examinar el informe del Director General los que presentan los Estados Miembros y todos los demás datos disponibles sobre la aplicación del Reglamento emite su parecer sobre cualquier asunto que requiera una decisión o simplemente una aclaración y remite a la Asamblea de la Salud las cuestiones que exigen su intervención.¹² Si la Asamblea acepta las recomendaciones del Comité sobre un asunto concreto se consideran interpretadas en ese sentido las disposiciones que han dado lugar a la dificultad. Esas interpretaciones revisten considerable importancia pues representan decisiones y precedentes que sobre servir de fundamento a los métodos actuales muy bien pudieran ser el punto de partida de las tradiciones venideras. Las autoridades sanitarias deben estudiar detenidamente esas decisiones e interpretaciones y si fuera preciso modificar en consecuencia sus respectivas legislaciones y servicios de cuarentena cuando contradigan el parecer de la Asamblea.


Si se exceptúan algunas controversias suscitadas por los artículos sobre fiebre amarilla no se han presentado dificultades graves para interpretar y aplicar el Reglamento Sanitario Internacional. Tan grata circunstancia puede atribuirse a la pertinencia del propio Reglamento al espíritu

¹² En las 4.^a, 6.^a y 7.^a Ofici al de la Organización Mundial de la Salud Nos 36, 64 y 77 se reproducen las deliberaciones, decisiones y resoluciones de la Cuarentena Internacional y en particular los informes al Comité de la Cuarentena Internacional y en particular los presentados por los Estados Miembros sobre la aplicación del Reglamento, los del Comité de la Cuarentena Internacional y las deliberaciones y decisiones de la Asamblea de la Salud.

con las patentes de sanidad y con las tarifas sanitarias y que gran parte de ellos se deben a la discrepancia que todavía existe entre los procedimientos seguidos al respecto en algunos países y las disposiciones del Reglamento Sanitario Internacional. Es inte

INTERNATIONAL SANITARY REGULATIONS
REGLEMENT SANITAIRE INTERNATIONAL

WORLD HEALTH ORGANIZATION
ORGANISATION MONDIALE DE LA SANTÉ



INTERNATIONAL CERTIFICATES
OF VACCINATION

CERTIFICATS INTERNATIONAUX
DE VACCINATION

Issued Dated at	
Passport No. or Travel Document No.	
No. of Doses	
Signature of Official	

Portada de la cartilla de certificados internacionales de vacunación

resante observar que pese al grado de perfeccionamiento a que han llegado los servicios epidemiológicos de la OMS y a la difusión regular por todo el mundo de informaciones epidemiológicas fidedignas la patente de sanidad documento que cabe calificar de arcaico sigue conservando en algunos países una importancia desmesurada. Siempre es difícil desarraigar tradiciones inveteradas pero la patente de sanidad que perdió hace mucho tiempo toda utilidad práctica, es una de las que con más tenacidad se aferran a una existencia absurda.

Los certificados internacionales de vacunación parecen haber ocasionado algunos contratiempos. Muchos médicos no emplean todavía el modelo de formulario establecido por la Organización para ese fin²¹ y a las cuestiones que con frecuencia se suscitan respecto a su validez y autenticidad vienen a añadirse algunas complicaciones motivadas por la diversidad de los métodos seguidos en la consignación de fechas. En efecto mientras que en algunos países el número correspondiente al mes precedía al que indicaba el día en otros se seguía la práctica contraria y para evitar la confusión resultante fue preciso exigir que todas las fechas se consignasen de la manera siguiente: día (en cifras arábigas) mes (en letras) año (en cifras arábigas), por ejemplo 1 febrero 1957.

Otros problemas relacionados con la vacunación han obligado al Comité de la Cuarentena Internacional a interpretar las correspondientes disposiciones. Se planteó por ejemplo la cuestión de la edad mínima a que debe practicarse la vacunación (ni en el Reglamento ni en los certificados de vacunación se menciona ninguna edad). No creyó el Comité que fuera oportuno establecer exenciones por razón de edad en lo que se refiere a la vacunación anti-mariólica y anti-variolica pero recomendó en cambio que las autoridades sanitarias de los lugares de llegada no exijan certificados de vacunación contra el cólera a los niños menores de un año. Otro problema es el de la exención por razones médicas. A este respecto el Comité declaró que si a juicio del vacunador la vacunación está contraindicada por razones médicas debe extenderse a la persona interesada un certificado donde consten los motivos en que se funda esa opinión con objeto de que la autoridad sanitaria del punto de llegada pueda tenerlos en cuenta si lo estima oportuno.

²¹ El Reglamento prescribe el empleo de un modelo de certificado internacional al de cuya impresión se encarga la OMS.

ción del cólera en una zona representa por sí sola un considerable avance social y económico

Los denodados esfuerzos que con objeto de mejorar las condiciones sanitarias se están desplegando en los países donde el cólera tiene todavía carácter endémico permiten augurar para fecha breve una victoria completa sobre la enfermedad. Ese afán de mejorar las condiciones sanitarias redundará en beneficio no solo de los países que lo sienten sino del resto del mundo y cuando en un día que quizá no este demasiado lejano el cólera quede eliminado por completo habrá pasado a la historia toda una etapa de la acción sanitaria internacional. Los viajeros y las mercancías podrán circular con mayor libertad y las autoridades de cuarentena tendrán una preocupación menos.

Se han registrado asimismo cambios muy significativos en la extensión y en la gravedad de las epidemias de peste. Los adelantos científicos permiten ya combatir y prevenir esa infección que se propaga fácilmente de los roedores a los seres humanos y de unas personas a otras y cuya mortandad tan espantosa antano se ha reducido mucho gracias a los modernos métodos de tratamiento.

No está muy lejos el día en que la mayoría de las ciudades portuarias y las poblaciones en general se sientan protegidas contra la peste merced a la destrucción de los roedores domésticos y a la creación de servicios médicos adecuados. La persistencia de la infección entre los roedores salvajes puede en cambio continuar preocupando a las autoridades locales de muchas zonas puesto que no existen hasta la fecha métodos eficaces para eliminar las enzootias pero son tantas las medidas de protección disponibles que el problema no llegará nunca a revestir gran importancia para el tráfico internacional. Es de suponer que las autoridades sanitarias no tardarán mucho en reconocer que la peste ha dejado de ser una amenaza para los

movimientos internacionales de personas y mercancías pero no por eso debe disminuirse el rigor de las medidas sanitarias en los buques y en los puertos ni la intensidad de los esfuerzos enaminados a mantener libres de ratas las embarcaciones y los almacenes.

A no ser que por alguna razón vuelvan a empeorar las condiciones sociales no es probable que reaparezcan la fiebre recurrente y el tifus enfermedades históricamente asociadas a las épocas de desorden social. Con los medios que en la actualidad existen para destruir los piojos pocos países tolerarán la presencia de esos vectores de enfermedades. Las dolencias transmitidas por piojos revisten por tanto muy poca importancia para el tráfico internacional y casi nunca es preciso aplicar los artículos del Reglamento que a ellas se refieren con lo que toca a su fin otro capítulo de la historia de la cuarentena.

La viruela sigue siendo un problema para los servicios de cuarentena internacional pero va cediendo terreno pese a su carácter de enfermedad sumamente contagiosa. Como ocurre en el caso del cólera la frecuencia de la viruela es un índice del sentido de responsabilidad social y la mayoría de los países están combatiendo energicamente esa infección. Es de suponer que gracias a las campañas antivariolicas basadas sobre todo en la vacunación la viruela correrá pronto la misma suerte de otras enfermedades que están desapareciendo del campo de acción de los servicios de cuarentena.

El problema más grave que se plantea en la actualidad a esos servicios es la fiebre amarilla enfermedad que fundamentalmente temen las llamadas zonas «receptivas» donde las poblaciones humanas y de primates son casi con certeza susceptibles la especie local de *Aedes aegypti* y otras podrían probablemente servir de vectores al virus y las condiciones climáticas y ecológicas parecen apropiadas para la propagación del mal. Hay sin embargo muchos motivos para

de comprension con que lo han aplicado la mayoria de las administraciones sanitarias nacionales, a las condiciones en que se

desenvuelve el tráfico moderno tan distintas de las de antaño y al mejoramiento de la situacion sanitaria y social de casi todos los paises

MIRANDO AL PORVENIR

Las prácticas de cuarentena no son sino un aspecto de la accion sanitaria internacional y su ámbito de aplicacion depende de otros muchos factores relacionados con la salud. A medida que los paises van mejorando sus condiciones de salubridad y combatiendo con eficacia las enfermedades transmisibles los problemas de la cuarentena pierden importancia.¹ Conviene pues que las autoridades sanitarias orienten sus esfuerzos no sólo a suprimir las condiciones que favorecen la aparicion de las enfermedades y a destruir los vectores de estas en sus respectivos territorios sino tambien a utilizar metodos modernos de prevencion sin confiar exclusivamente en la eficacia de las medidas de cuarentena.

El vigente Reglamento Sanitario Internacional representa con todo un notable avance en los esfuerzos desplegados para impedir la propagacion de las enfermedades de un pais a otro y para intensificar la cooperacion sanitaria internacional. Sus disposiciones han logrado en efecto reducir una engorrosa multiplicidad de convenios confusos y contradictorios a un solo instrumento juridico de carácter internacional aplicable al tráfico de mercancías y de viajeros han implantado un metodo de gran flexibilidad para la aceptacion de reglamentos internacionales mediante su aprobacion por la Asamblea de la Salud en sustitucion del antiguo procedimiento basado en la lenta

negociación de varios tratados distintos han conseguido hasta cierto punto la armonia con las modernas prácticas epidemiológicas y sanitarias y han contribuido a la supresion de bastantes requisitos tecnicos y administrativos de dudosa utilidad como por ejemplo las patentes de sanidad la declaracion personal del lugar de procedencia y del estado de salud y los certificados de vacunacion contra ciertas enfermedades.

El Reglamento se redactó con el deliberado propósito de acomodarlo a la evolución futura de los acontecimientos y cabe por tanto especular acerca de los cambios que pueden sobrevenir fundandose en los que hasta la fecha se han producido. La orientacion general de esos cambios puede preverse con bastante claridad en algunos casos y particularmente en el de las enfermedades cuarentenables.

El cólera que hace un siglo campaba por sus respetos en las rutas del comercio y de las peregrinaciones y se propagaba a la mayoria de los paises esta ya confinado a unos cuantos focos endémicos de Asia de los que sale raras veces sin extenderse nunca más allá de algunos territorios adyacentes. Esta notable transformacion es consecuencia directa de los progresos registrados en muchas actividades humanas tales como el gobierno de los paises, la administracion local, el mejoramiento de las condiciones sociales y la extension de los servicios medicos y la utilizacion más eficaz de los servicios sanitarios elementales. En realidad la desaparicion

¹ Gear H S (1948) *Brit med J* 1 109

rosos gobiernos en muchos casos con asistencia de la OMS y de otras organizaciones internacionales contribuyen directamente al éxito de la lucha contra las enfermedades cuarentenables y a su eliminación definitiva. A medida que mejoran las condiciones de vida disminuye en efecto la importancia de la peste del cólera del tifo y de otras enfermedades de esa índole. Todas esas consideraciones vienen a reforzar la creencia de que pronto llegará el día en que las barreras de la cuarentena sean innecesarias.

Los datos citados en el presente estudio dan idea de las enormes proporciones de los movimientos internacionales de personas y mercancías y de su importancia para la elevación del nivel de vida, la distribución de los alimentos, la divulgación de los conocimientos científicos etc. etc. Estamos sin duda alguna en vísperas de asistir a una enorme expansión de los viajes internacionales por tierra, mar y aire que exigirá la desaparición de todos los entorpecimientos injustificados. No podrán reclamarse entonces medidas de protección médica que no estén en consonancia con los modernos conocimientos epidemiológicos y cuyo coste no guarde proporción con sus resultados. Será pues indispensable que al proceder a la evaluación de las prácticas de cuarentena los asesores médicos tomen en consideración además de los factores estrictamente técnicos otros muchos que influyen en el bienestar de los pueblos como son los de índole alimentaria, social y económica.

Frente al irreprimible crecimiento del tráfico mundial en magnitud y en importancia de poco servirá aplicar medidas de cuarentena anticuadas. Si el tráfico internacional llegara alguna vez a influir en la propagación de enfermedades distintas de las que hoy se consideran cuarentenables, será preciso recurrir a otra clase de métodos. Incluso ahora, pese a cuantos afirman lo contrario, son demasiado frecuentes los casos de viajeros internacionales sometidos al aislamiento y a otras medidas de cuarentena, so pretexto de combatir infecciones como la gripe o la poliomielitis, que quizá sigan planteando problemas de «cuarentena» durante algún tiempo, pero a las que es muy dudoso que llegue a aplicarse nunca un Reglamento Sanitario Internacional como el vigente.

La cuarentena internacional que está estrechamente relacionada con los orígenes y con la evolución ulterior de la colaboración sanitaria entre los países, ha progresado sin cesar desde hace un siglo y en particular en los veinte años últimos. Para comprender toda su importancia es preciso tener presente que ha contribuido en gran medida a convencer a los gobiernos de la utilidad y la conveniencia de resolver todos los problemas por vía de discusión y de negociación internacional. Esa contribución al progreso científico a la comprensión internacional y al mejoramiento de las condiciones de vida merece un puesto de honor en la historia universal y en la historia de la medicina.

esperar que la situación evolucione favorablemente. Los Países Miembros de la Organización Sanitaria Panamericana han demostrado la posibilidad de eliminar *Aedes aegypti* y terminar con la fiebre amarilla urbana y su ejemplo podría extenderse a otras zonas. La vacuna antiamarilla tan fácil de preparar como eficaz es otra valiosa arma para combatir la infección. Incluso en casos de urgencia excepcional los medios existentes en la actualidad — es decir la destrucción de *Aedes aegypti* con los insecticidas modernos, la lucha contra las larvas y la inmunización de las poblaciones — pueden organizarse y aplicarse sin gran dificultad y las autoridades sanitarias que los tienen a su disposición se encuentran en situación muy favorable respecto a sus colegas de hace cien años totalmente inermes frente a la enfermedad.

Queda con todo un peligro el de la importación de las formas rural y selvática. Por remotas que sean las posibilidades de contacto entre los viajeros internacionales y los focos de fiebre amarilla selvática la persistencia de estos sigue siendo una amenaza para los países receptivos. Los conocimientos científicos disponibles no permiten todavía combatir con eficacia esos focos selváticos pero es muy posible que las intensivas investigaciones en curso no tarden en resolver el problema.

Aunque es de suponer que la fiebre amarilla continuará siendo durante algún tiempo motivo de preocupación para las autoridades de cuarentena hay razones para creer que su importancia disminuirá. No quiere eso decir que la infección no pueda introducirse por azar en una zona receptiva pero esto podría producirse tanto por la presencia casual de una embarcación o de cualquier otro vehículo, como por el paso regular de los modernos buques o aeronaves de pasajeros.

Respecto a las medidas de cuarentena que se aplican a la fiebre amarilla cabe esperar

que se simplifique considerablemente el cumulo de reglamentos reglamentos adicionales y reservas actualmente en vigor.

Uno de los medios de facilitar la aplicación del Reglamento Sanitario Internacional en lo venidero sería dar a conocer, con mayor exactitud y generalidad, la verdadera importancia actual de las enfermedades cuarentenables. Muchos temores antaño fundados persisten aun de modo demasiado general y habrá de pasar probablemente mucho tiempo antes de que palabras como «peste», «viruela», «cólera» y «tifus» pierdan su trágica resonancia. Es comprensible por tanto la violenta y excesiva reacción que suscita el menor brote de esas enfermedades. Cuando el público este mejor informado esa violencia y esos excesos serán desde luego menos frecuentes. Cada vez hay menos funcionarios de los servicios de cuarentena que no están al corriente de los adelantos epidemiológicos y que ante alguna enfermedad transmisible adoptan medidas de inadecuada severidad como el aislamiento, la cuarentena o la prohibición del tránsito de personas y mercancías que ocasionan considerables gastos directos e indirectos. Mucho más frecuente es que por ignorancia o por temores infundados el público o sus representantes oficiales presionen a las autoridades médicas para que adopten tales medidas. Cuando se sepa que las enfermedades cuarentenables lejos de representar la amenaza de antaño se pueden contener y tratar las exigencias que el público impone por conducto de los servicios médicos y sanitarios serán cada vez más razonables y poco a poco irán desapareciendo muchas medidas de cuarentena tan innecesarias como costosas.

Otro factor de importancia para la evolución futura de los métodos de cuarentena es como ya se ha indicado el rápido mejoramiento de las condiciones sociales y sanitarias en todo el mundo. Los extensos programas de acción sanitaria y los trabajos de evolución social y económica emprendidos por nume-

OBLIGACIONES CONTRAIDAS POR LOS ESTADOS MIEMBROS DE LA OMS EN VIRTUD DE LOS CONVENIOS CODIGOS Y ACUERDOS SANITARIOS INTERNACIONALES VIGENTES EN MARZO DE 1952

Países y Territorios	C. N. 1 1903	C. N. 2 1905 y Código S. Pan 1924	Con. 1 1912	Co. 10 1926	Co. 11 (N. y J. 1933)	Ac. do (PS) 1934	A. do (VC) 1934	Co. 12 1938	Con. 13 1944	Co. 14 (N. y J. 1944)	Pr. 15 (1946) ob. 16 1944	Pr. 17 (1946) ob. 18 1944
AFGANISTAN	-	-	-	+	-	-	-	+	-	-	-	-
ALBANIA	-	-	-	-	-	-	-	-	-	-	-	-
ALEMANIA	+R	-	+	+R	+	+	+	-	-	-	-	-
ARABIA SAUDITA	-	-	-	-	-	-	-	-	-	-	-	-
ARGENTINA	-	+	-	-	-	-	-	-	-	-	-	-
AUSTRALIA	+	-	+	+	+R	+	+	+	+R	+R	+	+
AUSTRIA	+	-	+	+	+	+	+	+	-	-	-	-
BELGICA	+	-	+	+	+	+	+	+	+	+	+	+
BIELORUSIA RSS DE	(+)	-	(+)	(+R)	-	(+)	(+)	-	-	-	-	-
BIRMANIA	(+)	-	-	-	+	-	-	(+)	-	-	-	-
BOLIVIA	-	+	-	-	+	-	-	-	-	-	-	-
BRASIL	+	+	+	+R	+R	-	-	+	-	-	-	-
BULGARIA	-	-	+	-	-	-	-	-	-	-	-	-
CAMBOYA	(+)	-	(+)	+	-	-	+	(+)	+	+R	+	+
CANADA	-	-	-	+R	-	-	+	+	+	+	+	+
CILAN	-	-	-	+	+	+	+	(+)	+	+R	+	+
COREA	-	-	-	(+R)	-	-	-	-	-	-	-	-
COSTA RICA	-	+	-	-	-	-	-	-	-	-	-	-
CUBA	-	+	-	-	-	-	-	-	-	-	-	-
CHECOSLOVAQUIA	(+)	-	(+)	+	-	-	-	-	-	-	-	-
CHILE	-	-	-	+R	+	-	-	-	-	-	-	-
CHINA	-	-	-	-R	-	-	-	-	-	-	-	-
DENAMARCA	+	-	+	+	-	+	+	-	+	+	+	+
ECUADOR	-	+	+	+	-	-	-	+	+	+	+	+
EGIPTO	+	-	+	+	+	-	-	+	-R	-R	-	-

Explicación de los signos y abreviaturas

- + indica que el país o territorio de que se trata era parte en el convenio o acuerdo que encabeza la columna
- (+) indica que el país o territorio en cuestión era parte en el Convenio de que se trata, porque el país responsable de sus relaciones exteriores en la época de la firma era parte en dicho convenio
- indica que el país o territorio de que se trata no era parte en el convenio
- R indica que el país o territorio en cuestión formuló reservas de carácter técnico al firmar el convenio o adherirse a él

Las letras a a l del encabezamiento corresponden a los apartados del artículo 105 del Reglamento Sanitario Internacional en que se enumeran los convenios y acuerdos

Las fechas 1905 y 1924 que figuran en la columna encabezada con la letra b se refieren a la Convención Sanitaria Panamericana de 1905 y al Código Sanitario Panamericano de 1924

Las letras PS que figuran en la columna encabezada con la letra f se refieren a la patente de sanidad las letras VC que figuran en la columna encabezada con la letra g se refieren al visado consular

ANEXO I

LA CUARENTENA INTERNACIONAL FECHAS Y DATOS IMPORTANTES

- 1851 Se celebra en París la primera conferencia sanitaria internacional y se redacta un convenio que sólo ratificaron tres países dos de los cuales retiraron su adhesión en 1865
- 1859 La segunda conferencia de París se limita a redactar un proyecto de convenio
- 1866 La tercera conferencia celebrada en Constantinopla se ocupa principalmente del cólera y de los medios apropiados para detener su propagación en particular de la adopción de medidas para el control sanitario de la peregrinación a La Meca
- 1874 La cuarta conferencia prepara en Viena un proyecto de convenio por el que se establecería con carácter permanente una comisión internacional de epidemiología
- 1881 Se celebra en Washington D C la quinta conferencia dedicada especialmente a la fiebre amarilla Se presenta una propuesta para establecer el intercambio de informaciones epidemiológicas
- 1885 En la sexta conferencia celebrada en Roma se formulan recomendaciones sobre varias materias sin que llegue a firmarse ningún convenio
- 1892 Se celebra otra conferencia en Venecia Se firma y se ratifica el convenio sobre la peregrinación a La Meca
- 1893 En la conferencia de Dresde diez naciones firman el convenio sobre el cólera
- 1894 Se firma en la conferencia de París un nuevo convenio sobre peregrinaciones que había de quedar sin efecto
- 1897 En la conferencia de Venecia 18 países redactan y firman un nuevo convenio Se ratifica el de Dresde de 1893 Se acuerda por unanimidad hacer obligatoria la notificación telegráfica de los primeros casos de peste
- 1903 Se firma en París un convenio sanitario internacional que refunde los de 1892 1893 1894 y 1897
- 1905 Se firma en Washington D C la Convención Sanitaria Panamericana inspirada en la de París
- 1907 Se firma en Roma un acuerdo para establecer en París el Office international d Hygiène publique
- 1912 Se celebra otra conferencia en París para modificar las disposiciones del convenio de 1903 Los cambios más importantes se refieren a la fiebre amarilla
- 1924 Dieciocho republicas americanas firman en La Habana el Código Sanitario Panamericano
- 1926 Se firma en París un convenio que modifica el de 1912 Figuran en el nuevo convenio disposiciones sobre el tífus y sobre la viruela
- 1933 Se firma en La Haya el Convenio Sanitario Internacional para la Navegación Aérea
- 1944 La UNRRA modifica en Montreal (sin convocar una conferencia) los convenios de 1926 y 1933
- 1945 Diecisiete Estados firman en Washington D C el convenio de 1944
- 1946 Se firma en Nueva York la Constitución de la Organización Mundial de la Salud Se autoriza a la Asamblea Mundial de la Salud para que establezca un reglamento de cuarentena
- 1951 La Cuarta Asamblea Mundial de la Salud celebrada en Ginebra aprueba el Reglamento Sanitario Internacional
- 1952 El 1 de octubre entra en vigor el Reglamento Sanitario Internacional
- 1955 La Octava Asamblea Mundial de la Salud celebrada en México D F aprueba el Reglamento Adicional que modifica las disposiciones del Reglamento Sanitario Internacional sobre la fiebre amarilla Este Reglamento Adicional entra en vigor el 1 de octubre de 1956
- 1956 La Novena Asamblea Mundial de la Salud celebrada en Ginebra aprueba el Reglamento Adicional que modifica las disposiciones del Reglamento Sanitario Internacional relativas al control sanitario del transporte de peregrinos y al modelo del certificado internacional de vacunación o revacunación contra la viruela

**OBLIGACIONES CONTRAIDAS POR LOS ESTADOS MIEMBROS DE LA OMS
EN VIRTUD DE LOS CONVENIOS CODIGOS Y ACUERDOS SANITARIOS
INTERNACIONALES VIGENTES EN MARZO DE 1952**

Países y Territorios	a	b	c	d	e	f	g	h	i	j	k	l
	Con- venio 1903	Con- venio 1905 y Código 1924	Con- venio 1912	Con- venio 1926	Con- venio (N.º 104) 1933	Ac- uerdo (PS) 1934	Ac- uerdo (VC) 1934	Con- venio 1938	Con- venio 1944	Convenio (N.º 104) 1933	Protocolo (1946) a b Con- venio 1926/44	Protocolo (1946) a b Con- venio 1926/44
AFGANISTAN	-	-	-	+	-	-	-	+	-	-	-	-
ALBANIA	-	-	-	+	-	-	-	-	-	-	-	-
ALEMANIA	+R	-	+	+R	+	+	+	-	-	-	-	-
ARABIA SAUDITA	-	-	-	-	-	-	-	-	-	-	-	-
ARGENTINA	-	+	-	-	-	-	-	-	-	-	-	-
AUSTRALIA	+	-	+	+	+R	+	+	+	+R	+R	+	+
AUSTRIA	+	-	+	-	+	+	+	-	-	-	-	-
BELGICA	+	-	+	+	+	+	+	+	+	+	+	+
BIELORRUSIA	(+)	-	(+)	(+)	-	(+)	(+)	-	-	-	-	-
BIRMANIA	(+)	-	-	-	+	-	-	(+)	-	-	-	-
BOLIVIA	-	+	-	+	+	-	-	-	-	-	-	-
BRASIL	+	+	+	+R	+R	-	-	+	-	-	-	-
BULGARIA	-	-	+	-	-	-	-	-	-	-	-	-
CAMBODIA	(+)	-	(+)	+	-	-	-	(+)	+	+R	+	+
CANADA	-	-	-	+R	-	-	+	-	+	+	+	+
CEILAN	-	-	-	+	+	+	+	(+)	+	+	+	+
CHINA	-	-	-	(+)	+	-	-	-	-	-	-	-
COREA	-	-	-	+	+	-	-	-	-	-	-	-
COSTA RICA	-	+	-	-	-	-	-	-	-	-	-	-
CUBA	-	+	-	-	-	-	-	-	-	-	-	-
CHECOSLOVAQUIA	(+)	-	(+)	+	-	-	-	-	-	-	-	-
CHILE	-	-	-	+R	+	-	-	-	-	-	-	-
CHINA	-	-	-	-R	-	-	-	-	-	-	-	-
DINAMARCA	+	-	+	+	-	+	+	-	+	+	+	+
ECUADOR	-	+	+	-	-	-	-	+	+	+	+	+
EGIPTO	+	-	+	+	+	-	-	+	-R	-R	-	-

Explicación de los signos y abreviaturas

- + indica que el país o territorio de que se trata era parte en el convenio o acuerdo que encabeza la columna
 (+) indica que el país o territorio en cuestión era parte en el Convenio de que se trata, porque el país responsable de sus relaciones exteriores en la época de la firma era parte en dicho convenio
 - indica que el país o territorio de que se trata no era parte en el convenio
 R indica que el país o territorio en cuestión formuló reservas de carácter técnico al firmar el convenio o adherirse a él

Las letras a a l del encabezamiento corresponden a los apartados del artículo 105 del Reglamento Sanitario Internacional en que se enumeran los convenios y acuerdos

Las fechas 1905 y 1924 que figuran en la columna encabezada con la letra b se refieren a la Convención Sanitaria Panamericana de 1905 y al Código Sanitario Panamericano de 1924

Las letras PS que figuran en la columna encabezada con la letra f se refieren a la patente de salud; las letras VC que figuran en la columna encabezada con la letra g se refieren al visado consular

**OBLIGACIONES CONTRAIDAS POR LOS ESTADOS MIEMBROS DE LA OMS
EN VIRTUD DE LOS CONVENIOS, CODIGOS Y ACUERDOS SANITARIOS
INTERNACIONALES VIGENTES EN MARZO DE 1952 (continuación)**

Países y Territorios	a	b	c	d	e	f	g	h	i	j	k	l
	Convenio 1903	Convenio San Pan 1905 y Código San Pan 1924	Convenio 1912	Convenio 1916	Convenio (Nuevos códigos) 1933	Acuerdo (PS) 1934	Acuerdo (VC) 1934	Convenio 1926/38	Convenio 1926/44	Convenio (Nº 23 códigos) 1933/44	Protocolo (1946) sob. Con. en 1926/44	Protocolo (1946) sob. Con. (Nº 23) 1933/44
EL SALVADOR	-	+	-	+	-	-	-	-	-	-	-	-
ESPAÑA	+	-	+R	+R	-	-	-	-	-	-	-	-
ESTADOS UNIDOS DE AMERICA	+R	+	+R	+R	+R	-	-	-	+	+	+	+
ETIOPIA	-	-	-	-	-	-	-	-	+	+	+	+
FILIPINAS (REPUBLICA DE)	(+)	-	(+)	(+)	(+)	-	-	-	+	+	+	+
FINLANDIA	(+)	-	-	+R	-	-	-	-	+	+	+	+
FRANCIA (Y ARGELIA)	+	-	+	+	-	-	¹¹ +	+	+	+R	+	+
GRECIA	-	-	-	+	+	¹² +	¹³ +	+	+	+	+	+
GUATEMALA	-	+	+	-	-	-	-	-	+	+	+	+
HAITI	-	+	-	-	-	-	-	-	+	+	+	+
HONDURAS (REPUBLICA DE)	-	+	+	-	-	-	-	-	+	+	+	+
HUNGRIA	+	-	+	+	-	¹⁴ -	¹⁵ +	-	-	-	-	-
INDIA	+	-	-	+R	+	¹⁶ -	¹⁷ +	+R	+	+R	+	+
INDONESIA (REPUBLICA DE)	-	-	-	(+R)	-	-	¹⁸ (+)	-	-	-	-	-
IRAQ	-	-	-	+	+R	-	+	-	-	-	-	-
IRAN	+	-	+	-R	-	-	-	-	-	-	-	-
IRLANDA (REPUBLICA DE)	(+)	-	(+)	+	-	-	-	(+)	-	-	-	-
ISLANDIA	-	-	(+)	(+)	-	-	-	-	-	-	-	-
ISRAEL	-	-	-	(+)	(+)	-	(+)	(+)	+	+	+	+
ITALIA	+	-	+	+	¹⁹ +	²⁰ +	²¹ +	+	+	+	+	+
JAPON	-	-	-	+R	-	²² -	²³ -	-	-	-	-	-
JORDANIA	-	-	-	²⁴ (+)	²⁵ (+)	-	²⁶ (+)	(+)	²⁷ +	²⁸ +	²⁹ +	³⁰ +
LAOS	(+)	-	(+)	(+)	(+)	-	-	(+)	+	+R	+	+
LIBANO	-	-	(+)	(+)	(+)	-	-	(+)	-	-	-	-
LIBERIA	-	-	-	-	+	-	-	-	-	-	-	-
LUXEMBURGO	+	-	+	+	-	-	-	-	+	+	+	+
MEXICO	+	+R	+	+R	+	-	-	-	-	-	-	-
MONACO	-	+	-	+	-	-	+	-	-	-	+	+
NICARAGUA	+	-	+	-	-	-	-	-	+	+	-	-
NORUEGA	-	-	-	-	-	-	-	-	-	-	-	-
NUEVA ZELANDIA Y TERRITORIOS DEPENDIENTES	+	-	+	³¹ +	-	+	+	+	³² +	³³ +	³⁴ +	³⁵ +
PAISES BAJOS	+	-	-	(+R)	(+)	-	(+R)	-	-	-	-	-
PAKISTAN	(+)	-	-	-	-	-	-	-	-	-	-	-
PANAMA (REPUBLICA DE)	-	+R	+R	-	-	-	-	-	-	-	-	-

OBLIGACIONES CONTRAIDAS POR LOS ESTADOS MIEMBROS DE LA OMS EN VIRTUD DE LOS CONVENIOS CODIGOS Y ACUERDOS SANITARIOS INTERNACIONALES VIGENTES EN MARZO DE 1952 (conclusión)

Países y Territorios	a Co 1903	b C o n 1903 y Cód g 1924	c Co n 1912	d Co n 1916	e Co n 1921 Ad 1933	f A d 1931 1934	g Acu d 1934	h C n 1938	i Co n 1944	j Co n 1946 Ad 1944	k Co n 1946 Ad 1944	l Co n 1946 Ad 1944
PARAGUAY	-	+	-	-	-	-	-	-	-	-	-	-
PERU	(+)	+	(+)	+	+	+	+	+	+	+	+	+
POLONIA	+	-	+	+	+	+	+	+	+	+	+	+
PORTUGAL	+	-	+	+	+	+	+	+	+	+	+	+
REINO UNIDO	+	-	+	+	+	+	+	+	+	+	+	+
REPUBLICA DOMINICANA	-	+	-	-	+	-	-	-	-	-	-	-
RHODESIA DEL SUR (Miembro Asociado)	-	-	-	(+)	(+)	-	(+)	(+)	(+)	(+)	(+)	(+)
RUMANIA	+	-	+	+	+	+	+	+	+	+	+	+
SIRIA	-	-	(+)	(+)	(+)	+	+	+	+	+	+	+
SUECIA	+	-	+	+	+	+	+	+	+	+	+	+
SUIZA (Y LIECHTENSTEIN)	+	-	+	-	-	-	-	-	-	-	-	-
TAILANDIA	-	-	-	+	+	-	+	+	+	+	+	+
TURQUIA	(+)	-	(+)	(+)	(+)	(+)	(+)	-	-	-	-	-
UCRANIA, RSS DE	-	-	-	+	+	+	+	+	+	+	+	+
UNION SUDAFRICANA	-	-	-	+	+	+	+	+	+	+	+	+
URSS	+	+	+	+	+	+	+	+	+	+	+	+
URUGUAY	-	+	+	+	+	+	+	+	+	+	+	+
VEZUELA	-	+	-	+	+	+	+	+	+	+	+	+
VIET NAM	(+)	-	(+)	+	-	-	+	+	+	+	+	+
YUGOSLAVIA	(+)	-	(+)	+	-	-	+	+	+	+	+	+

Es p u firmo demás un e erdo espe al par es fi co
la Indochin, Francesa (actu lmen Camboja, Laos y Viet Nam)

Est p l firmo demás un ac erd espe al par est fi co
Danz g D ania, Es a, Aleman a, Grec a, J pón F l u
y S ec

Este pa firmo d má un ac erd espe al par est fi con
Francia, Le on, Lit an y Noru g

E pa firmo istan cu do espe al par es
fin co l d Brita ca (en la actu l dad l d y Pakistá y

E te p firmo además erdo espe l para es fi on
A ral a, l d Britá ca (tualmen e Ind y Pakistá) J pón

l dias Orten les Neerlandesas (en l act al dad l domer y
N G nea Oc de tall F der o M l y y Es bleicme

tos de los Estrechos
l l don T er y Labr d

Incl dadas las isl M l d

Es haldas las el Feroc l l nd y l l d as Occe de tales
Danz sas (en l al d d las V gres, Estados U don)

Este pa firmo además un acuerdo especial para este fi con
Bel

Encl da la lal Feroc y G onlandia

Est p firmo demás acuerdo especial para es fin co
Belges y la colon as b nicas

Est pa firmo demás acue do espe al para est fi con
Belgia y H gri

Es pa firmo demás un acuerdo especial para este fi co
l J pón

Este p u firmo no obstan u acue rd espe al para este
fi con Grec

El pa firmo no obstante
fin con firm a

Este p u firmo par anteriormente d las l dias
Orten les Neerlandesas firmo demás un acuerdo especial

para est fi on l l douch, Francia (act almente Camboja,
Laos y Viet Nam)

Es espe cial con la colou y posesiones talan t

Este p u firmo no obstante un acuerdo especial para este
fin co Belgia

En pa firmo istan un acuerdo especial para est
fi con G uea Indochin Francesa (actualmente Camboja,
Laos y Viet Nam)

Adhes ón del Reino U d de Gran Bretaña Irlanda del
Norte en nombre de Palest y Tran jord n

Adhes ón del Reino U d d Can Britañ Irlanda del
Nort en ombre d Palestina, pero no de Transjordania

R oficac ón (191) o dioxó (1944) l mital l metrópol
Escep lal l d as Orientales Neerlandesas (en la actualidad

Indones y Nueva Guinea Occidental) S rinan y Curacao
(Ind Occid t les Neerlandesas)

Incluida Samoa Occidental

Escep los territorios españoles d l golf d G mea

Este p u firmo además acuerdo especial para est fin con
l colonias francesas

En nombre de Montenegro únicamente

**OBLIGACIONES CONTRAIDAS POR LOS ESTADOS MIEMBROS DE LA OMS
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INTERNACIONALES VIGENTES EN MARZO DE 1952 (continuación)**

Paises y Territorios	a	b	c	d	e	f	g	h	i	j	k	l
	Convenio 1903	Convenio San Pan 1905 y Código San Pan 1924	Convenio 1912	Convenio 1916	Convenio (Na ega c ón Afrea) 1933	Acuerdo (PS) 1934	Acuerdo (VC) 1934	Convenio 1938	Convenio 1926/44	Convenio (N sa c ón Afrea) 1933/44	Protocolo (1946) b 1926/44	P. protocolo (1946) sobre Co. (N Afrea) 1933/44
EL SALVADOR	-	+	-	+	-	-	-	-	-	-	-	-
ESPAÑA	+	-	+R	²⁰ +R	-	-	-	-	-	-	-	-
ESTADOS UNIDOS DE AMERICA	+R	+	+R	+R	+R	-	-	-	+	+	+	+
ETIOPIA	-	-	-	-	-	-	-	-	+	+	+	+
FILIPINAS (REPUBLICA DE)	(+)	-	(+)	(+)	(+)	-	-	-	+	+	+	+
FINLANDIA	(+)	-	-	+R	-	-	-	-	+	-	+	-
FRANCIA (Y ARGELIA)	+	-	+	+	-	-	¹³ +	+	+	+R	+	+
GRECIA	-	-	-	+	+	¹² +	¹³ +	+	+	+	+	-
GUATEMALA	-	+	+	-	-	-	-	-	+	+	+	+
HAITI	-	+	-	-	-	-	-	-	+	+	+	+
HONDURAS (REPUBLICA DE)	-	+	+	-	-	-	-	-	+	+	+	+
HUNGRIA	+	-	+	+	-	¹¹ -	+	-	-	-	-	-
INDIA	+	-	-	+R	+	¹⁴ -	¹⁶ +	+R	+	+R	+	+
INDONESIA (REPUBLICA DE)	-	-	-	(+)+R	+R	-	¹⁷ (+)	-	-	-	-	-
IRAK	-	-	-	+	-	-	+	-	-	-	-	-
IRAN	+	-	+	-R	-	-	-	-	-	-	-	-
IRLANDA (REPUBLICA DE)	(+)	-	(+)	+	-	-	-	(+)	-	-	-	-
ISLANDIA	-	-	(+)	(+)	-	-	-	(+)	-	-	-	-
ISRAEL	-	-	-	(+)	(+)	-	(+)	+	+	+	+	+
ITALIA	+	-	+	+	¹⁸ +	¹⁸ +	¹⁹ +	+	+	-	+	+
JAPON	-	-	-	+R	-	¹⁶ -	¹⁹ (+)	-	²¹ +	²¹ +	²¹ +	²¹ +
JORDANIA	-	-	-	²¹ (+)	²² (+)	-	²⁰ -	(+)	+	+R	+	+
LAOS	(+)	-	(+)	(+)	-	-	-	(+)	+	-	-	-
LIBANO	-	-	(+)	(+)	(+)	-	-	-	-	-	-	-
LIBERIA	-	-	-	-	+	-	-	-	+	+	+	+
LUXEMBURGO	+	-	+	+	+	-	-	-	+	+	+	+
MEXICO	+	+R	+	+R	-	-	+	-	-	-	-	-
MONACO	-	-	+	+	+	-	-	-	+	+	+	+
NICARAGUA	-	+	-	-	-	-	⁹ +	-	-	-	-	-
NORUEGA	+	-	+	-	-	-	-	-	-	-	-	-
NUEVA ZELANDIA Y TERRITORIOS DEPENDIENTES	+	-	+	²⁴ +	-	+	+	+	²³ +	+	+	+
PAISES BAJOS	+	-	²³ +	²⁴ +	²⁵ +	+	+	-	²³ +	+	+	+
PAKISTAN	(+)	-	-	(+)+R	(+)	-	(+)+R	-	-	-	-	-
PANAMA (REPUBLICA DE)	-	+R	+R	-	-	-	-	-	-	-	-	-

	I	II	III		I	II	III
Islandia	+	+	+	Puerto Rico	+	+	+
Israel	+	+	+	Reino Unido	+	+	~
Italia	+	+	+	Rhodesia y Nyasalandia,			
Jamaica	+	+	—	Federación de	+	+	+
Japón	+	+	+	Rumania			
Jordania	+	+	+	Salomón, Islas (Reino Unido)	R	+	—
Katar	+	+	—	Samoa (Estados Unidos)	+	+	+
Kenya	+	+	—	Samoa Occidental	+	+	+
Kuwait	+	+	—	San Pedro y Miquelón	+	+	+
Laos	+	+	+	San Vicente (Islas de			
Libano	+	—	+	Barlovento)	+	+	—
Liberia	+	+	+	Santa Elena	+	+	—
Libia	+	—	+	Santa Lucía (Islas de			
Liechtenstein	—	—	—	Barlovento)	R	+	—
Luxemburgo	+	+	+	Santo Tomé y Princip	+	—	+
Macao	+	—	+	Sarawak	R	+	—
Madagascar y terr. dependientes	+	+	+	Seychelles	+	—	—
Malaya Federación	+	—	—	Sierra Leona	+	—	—
Maldivas Isla	+	+	—	Singapur	—	—	—
Malta	~	—	—	Siria	+	+	+
Marruecos	+	+	+	Somalia (Adm. italiana)	+	+	+
Mauricio Isla	+	+	—	Somalia Británica	R	+	—
México	+	+	+	Somalia Francesa	+	+	+
Monaco	+	+	+	Sotavento Islas d	+	+	—
Mozambique	+	—	+	Suazilandia	+	+	—
Nauru Isla				Sudán	+	+	+
Nepal	+	+	+	Suecia	+	+	+
Nicaragua	+	+	+	Suiza	+	+	+
Nigeria, Federación de	+	—	—	Surinam	R	+	+
Noruega	+	—	+	Tailandia	+	+	+
Nueva Caledonia	+	+	+	Tanganyika	+	+	—
Nueva Guinea Occidental	+	+	+	Tánger Zona Internacional			
Nueva Zelanda	+	+	+	Timor Portugués	+	—	+
Nuevas Hebridas	+	+	+	Togo (Adm. británica)	+	+	+
Oceanía Establecimientos fran-				Togo (Adm. francesa)	+	+	—
ceses de	+	+	+	Tonga Islas de	R	+	—
Omán y Mascate	—	—	—	Trinidad y Tobago	+	+	—
Omán, Territorios en regimen				Tunez	+	+	+
provisional	+	+	—	Turquía	+	+	+
Pacífico Islas del				Ucrania RSS de			
(Estados Unidos)	+	+	+	Uganda	+	+	—
Países Bajos	+	+	+	Unión Sudafricana	R	R	+
Pakistán	R	~	+	URSS			
Panamá	+	+	+	Uruguay	+	+	+
Panamá, Zona del Canal	+	+	+	Vaticano Ciudad del	+	+	+
Papua y Nueva Guinea	—	—	—	Venezuela	+	+	+
Paraguay	+	+	+	Viet Nam	+	+	+
Peru	+	+	+	Virgenes Islas (Reino Unido)	+	+	—
Pitcairn, Islas	R	+	—	Virgenes Islas (Estados Unidos)	+	+	+
Polonia				Yemen	+	+	+
Portugal territorio continental				Yugoslavia	+	+	+
y aeropuerto de Santa María				Zanzibar	+	+	—
(Azores)	+	+	+				
Madera y Azores excepto el							
aeropuerto de Santa María	+	—	+				

SITUACION DE LOS ESTADOS Y TERRITORIOS EL 1º DE OCTUBRE DE 1956* RESPECTO AL REGLAMENTO SANITARIO INTERNACIONAL

- I Reglamento Sanitario Internacional de 1951
 II Reglamento Adicional de 1955 (disposiciones sobre la fiebre amarilla)
 III Reglamento Adicional de 1956 certificado de vacunación contra la viruela)
 + Ratificado sin reservas
 R Ratificado con reservas
 — Sin ratificar
 — No obligado por las modificaciones que el artículo 1 del Reglamento Adicional de 1955 introduce en los artículos 1 3 6 20 70 y 73 del Reglamento Sanitario Internacional
 Situación sin decidir

	I	II	III		I	II	III
Aden Colonia de	+	+	—	Cuba	+	+	+
Aden Protectorado de	+	+	—	Checoslovaquia	—	—	—
Afganistán	+	+	+	Chile	—	—	—
África Ecuatorial Francesa	+	+	+	China	+	+	+
África Occidental Española	+	+	+	Chipre	+	+	—
África Occidental Francesa	+	+	+	Dinamarca	+	+	+
África Sudoccidental	R	R	+	Dominica (Islas de Barlovento)	R	+	—
Albania	—	—	—	Dominicana Republica	+	+	+
Alemania Republica Federal de	+	+	—	Ecuador	+	+	+
Angola	+	—	+	Egipto	R	—	+
Antillas Neerlandesas	+	+	+	El Salvador	+	+	+
Arabia Saudita	R	—	+	España	+	+	+
Argentina	+	+	+	Estados Unidos de America	+	+	+
Australia	—	—	—	Etiopía	+	+	+
Austria	+	+	+	Falkland (Malvinas) Islas	R	+	—
Bahamas	+	+	—	Feroe Islas	—	—	—
Bahrein	+	+	—	Fiji y territorios dependientes	R	+	—
Barbados	+	+	—	Filipinas	R	+	+
Basutolandia	+	+	—	Finlandia	+	+	+
Bechuanalandia	+	+	—	Francia	+	+	+
Bélgica	+	+	+	Gambia	R	—	—
Bermudas	+	+	—	Gibraltar	+	+	—
Bielorrusia RSS de	—	—	—	Gilbert y Ellice Islas	R	+	—
Birmania	—	—	—	Granada (Islas de Barlovento)	+	+	—
Bolivia	+	+	+	Grecia	R	—	+
Borneo Septentrional	+	+	—	Groenlandia	—	—	—
Brasil	+	+	+	Guam	+	+	+
Brunei	R	+	—	Guatemala	+	+	+
Bulgaria	+	+	+	Guayana Británica	+	+	—
Camboja	+	+	+	Guinea Española	+	+	+
Camerun	+	+	+	Guinea Portuguesa	+	—	+
Canadá	+	+	+	Haití	+	+	+
Cabo Verde Islas de	+	—	+	Honduras	+	+	+
Ceilán	R	R	+	Honduras Británica	+	+	—
Colombia	+	+	+	Hong Kong	+	+	—
Comores Islas	+	+	+	Hungría	—	—	—
Congo Belga y Ruanda Urundi	+	+	+	India	R	R	+
Cook Islas	+	+	+	India Territorios portugueses	+	—	+
Corea	+	—	—	en la	+	+	+
Costa de Oro	+	+	+	Indonesia	+	—	—
Costa Rica	+	+	+	Irak	+	+	+
				Irán	+	+	+
				Irlanda	+	+	+

	I	II	III		I	II	III
Islandia	+	+	+	Puerto Rico	+	+	+
Israel	+	+	+	Reino Unido	+	+	—
Italia	+	+	+	Rhodesia y Nyasalandia,			
Jamaica	+	+	—	Federación d	+	+	+
Japón	+	+	+	Rumania			
Jordania	+	+	+	Salomón Islas (Reino Unido)	R	+	—
Katar	+	+	—	Samoa (Estados Unidos)	+	+	+
Kenya	+	+	—	Samoa Occidental	+	+	+
Kuwait	+	+	—	San Pedro y Miquelón	+	+	+
Laos	+	+	+	San Vicente (Islas d			
Líbano	+	—	+	Barlovento)	+	+	—
Libania	+	+	+	Santa Elena	+	+	—
Libia	+	—	+	Santa Lucía (Islas de			
Liechtenstein	—	—	—	Barlovento)	R	+	—
Luxemburgo	+	+	+	Santo Tom ⁴ y Princip	+	—	+
Macao	+	—	+	Sarawak	R	+	—
Madagascar y terr. dependientes	+	+	+	Seychelles	+	—	—
Malaya Federación	+	—	—	Sierra Leona	+	—	—
Maldivas Isla	+	+	—	Singapur	—	—	—
Malta	—	—	—	Sina	+	+	+
Marruecos	+	+	+	Somalia (Adm. italiana)	+	+	+
Mauricio Isla	+	+	—	Somalia Británica	R	+	—
Meuco	+	+	+	Somalia Francesa	+	+	+
Mónaco	+	+	+	Sotavento Islas d.	+	+	—
Mozambique	+	—	+	Suazilandia	+	+	—
Nauru, Isla				Sudán	+	+	+
Nepal	+	+	+	Suecia	+	+	+
Nicaragua	+	+	+	Suiza	+	+	+
Nigeria Federación de	+	—	—	Surinam	R	+	+
Noruega	+	—	—	Tailandia	+	+	+
Nueva Caledonia	+	+	+	Tanganyika	+	+	—
Nueva Guinea Occidental	+	+	+	Tánger Zona Internacional			
Nueva Zelanda	+	+	+	Timor Portugues	+	—	+
Nuevas Hebridas	+	+	+	Togo (Adm. británica)	+	+	+
Oceania, Establecimientos fran				Togo (Adm. francesa)	+	+	—
ceses de	+	+	+	Tonga Islas de	R	+	—
Omán y Mascate	—	—	—	Trinidad y Tobago	+	+	—
Omán, Territorios en régimen				Tunez	+	+	+
provisional	+	+	—	Turquia	+	+	+
Pacífico Islas del				Ucrania RSS de			
(Estados Unidos)	+	+	+	Uganda	+	+	—
Países Bajos	+	+	+	Unión Sudafricana	R	R	+
Pakistán	R	—	+	URSS			
Panamá	+	+	+	Uruguay	+	+	+
Panamá, Zona del Canal	+	+	+	Vaticano Ciudad del	+	+	+
Papua y Nueva Guinea	—	—	—	Venezuela	+	+	+
Paraguay	+	+	+	Viet Nam	+	+	+
Peru	+	+	+	Virgenes Islas (Reino Unido)	+	+	—
Pitcairn, Islas	R	+	—	Virgenes Islas (Estados Unidos)	+	+	+
Polonia				Yemen	+	+	+
Portugal territorio continental				Yugoslavia	+	+	+
y aeropuerto de Santa María				Zanzibar	+	+	—
(Azores)	+	+	+				
Madera y Azores excepto el							
aeropuerto de Santa María	+	—	+				

PUBLICACIONES DE LA OMS SOBRE CUARENTENA INTERNACIONAL Y ENFERMEDADES CUARENTENABLES

Todas las publicaciones de la OMS en materia de cuarentena internacional y de enfermedades cuarentenables se catalogan regularmente en la biblioteca de la OMS y se hace referencia a ellas en la sección bibliográfica del *Bulletin*.

Las estadísticas relativas a las enfermedades cuarentenables aparecen en *Statistiques épidémiologiques et démographiques annuelles* — *Annual Epidemiological and Vital Statistics* publicación bilingüe cuya Parte II está dedicada a los casos de enfermedades que han de notificarse y a las defunciones que ocasionan empezando por las seis dolencias llamadas pestilenciales. Hasta la fecha los volúmenes publicados dentro de esta serie se refieren a los años 1939-46 1947-49 1950 1951 1952 y 1953 respectivamente.

Se publican asimismo con cierta frecuencia en *Relevé épidémiologique hebdomadaire* — *Weekly Epidemiological Record* datos sobre los servicios de información epidemiológica de la OMS. De esta publicación también bilingüe se edita una vez al año por lo menos un suplemento con una lista de los certificados de vacunación exigidos y de las medidas sanitarias que aplican los países y territorios de conformidad con el Reglamento Sanitario Internacional.

I CUARENTENA INTERNACIONAL

1948

MORGAN M T

Notes sur l'évaluation de l'infestation des navires par les rongeurs en vue de la délivrance d'un certificat international aux termes de l'article 28 de la Convention sanitaire internationale de 19 6 *Bull Org mond Santé* 1 69 74 *Bull Wld Hlth Org* 1 63-67

ORGANISATION MONDIALE DE LA SANTÉ, COMITÉ D'EXPERTS SUR LA QUARANTAINE

Rapport sur la première session. En Rapports des comités d'experts à la Commission intermédiaire IV Comité d'experts sur la Quarantaine *Actes off O g mond. Santé Off Rec Wld Hlth O g* 8 27 31

ORGANISATION MONDIALE DE LA SANTÉ SOUS-COMITÉ D'EXPERTS POUR LA REVISION DES CLAUSES DES CONVENTIONS SANITAIRES INTERNATIONALES RELATIVES AU PELERINAGE

Rapport sur la première session. En Rapports des comités d'experts à la Commission intermédiaire *Actes off Org mond Santé Off Rec Wld Hlth O g* 8 32-48

1949

DUGUET J

La désinsectisation des aéronefs. Etude en relation avec la revision des conventions internationales *Bull*

Org mond Santé 2, 167 205 *Bull Wld Hlth Org* 2 155-191

Radiodiffusion de boletines epidemiológicos desde Ginebra. *Crón. Org mond Salud* 3 41-43

Mensajes internacionales de cuarentena por radio. *Historia Crón Org mond Salud* 3 167 169

ORGANISATION MONDIALE DE LA SANTÉ COMITÉ D'EXPERTS DE L'ÉPIDÉMIOLOGIE INTERNATIONALE ET DE LA QUARANTAINE

Rapport sur la première session. En Rapports des comités d'experts et autres organes consultatifs au Conseil exécutif *Actes off Org mond Santé Off Rec Wld Hlth Org*, 19 5-15

ORGANISATION MONDIALE DE LA SANTÉ, COMITÉ D'EXPERTS DE L'ÉPIDÉMIOLOGIE INTERNATIONALE ET DE LA QUARANTAINE, SECTION DE LA QUARANTAINE

Rapport sur la première session. En Rapports des comités d'experts et autres organes consultatifs au Conseil exécutif *Actes off O g mond Santé Off Rec Wld Hlth Org*, 19 16-17

1951

DOROLLE P

Antecedentes del Reglamento Sanitario Internacional. *Crón O g mond Salud* 5 131 135

Reglamento Sanitario Internacional. Reglamento

Nº 2 de la Organización Mundial de la Salud *Org mund Salud Ser Inform tecn* 41 103 páginas
Nuevo Reglamento Sanitario Internacional *Crón Org mund Salud* 5 237 244

1952

Certificados internacionales de vacunación *Crón Org mund Salud* 6 Nº 10 36
Règlement sanitaire international Débats et décisions de la Commission speciale et de la Quatrième Assemblée mondiale de la Santé concernant le Règlement Nº 2 de l'OMS *Actes off Org mond Santé* 37 447 pp

Este volumen contiene además de las actas de las sesiones una historia de la cuarentena internacional una memoria explicativa acerca del Reglamento Sanitario Internacional el texto completo del Reglamento un cuadro comparativo de los convenios sanitarios y genéticos y acuerdos análogos y un índice del Reglamento

1953

BARNES J M
Toxicité pour l'homme de certains pesticides (*Organisation mondiale de la Santé Série de Monographies* Nº 16) 141 pp
Toxic hazards of certain pesticides to man (*World Health Organization Monograph Series* Nº 16) 129 pp

UNITED STATES PUBLIC HEALTH SERVICE COMMUNICABLE DISEASE CENTER
Techniques and materials for the disinsection of aircraft *Bull Org mond Santé Bull Wld Hlth Org* 8 527 533

1954

El Reglamento Sanitario Internacional Dos años de experiencia *Crón Org mund Salud* 8 306-312

Ports agréés et désignés pour la délivrance des certificats de dératisation et d'exemption de la dératisation Situation au 2 juillet 1954 *Relevé épidém hebdomadaire* *Wkly epidem Rec* Nº 26 Suppl 2 1 16

Débats décisions et rapports relatifs à la quarantaine internationale Rapport annuel du Directeur général sur le Règlement sanitaire international premier rapport du Comité de la Quarantaine internationale débats et décisions de la Septième Assemblée mondiale de la Santé ayant trait à la quarantaine internationale *Actes off Org mond Santé Off Rec Wld Hlth Org* 56 121 pp

1955

Aéroports notifiés en application du Règlement sanitaire international Situation au 22 avril 1955 *Relevé épidém hebdomadaire* *Wkly epidem Rec* Nº 16 Suppl 3 1 12

Lista de aeropuertos que las administraciones sanitarias de acuerdo con lo dispuesto en el Reglamento consideran como provistos de una zona de tránsito directo (es decir una zona especial establecida en el recinto de un aeropuerto o conigua

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Tarifs des droits sanitaires en vigueur au 18 novembre 1955 *Relevé épidém hebdomadaire* *Wkly epidem Rec* Nº 46 Suppl 5 134

El Reglamento Sanitario Internacional prohíbe e presamente que las autoridades sanitarias perciban derechos por las visitas médicas prescritas en el Reglamento o por la vacunación de una persona a su llegada y por el certificado correspondiente. Los derechos que se perciban por los trabajos de desratización, desinfección o desinsectación efectuados en cumplimiento del Reglamento Sanitario Internacional han de ajustarse a una tarifa única y ser poco elevados, no excediendo del costo efectivo de los servicios prestados. El suplemento citado contiene una lista de los derechos que perciben de esos países y territorios por los servicios sanitarios que se encargan de ejecutar

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1956

Dispositions concernant la vaccination contre la fièvre jaune Situation au 15 juin 1956 *Relevé épidém hebdomadaire* *Wkly epidem Rec* Nº 24 Suppl 2 1 23

De acuerdo con el Reglamento Sanitario Internacional el certificado internacional de vacunación contra la fiebre amarilla sólo tiene validez si la vacuna utilizada ha sido aprobada por la OMS y si el centro de vacunación ha sido habilitado por la administración sanitaria del territorio en que está situado. En el suplemento figura una lista — preparada por la OMS sobre la base de las comunicaciones recibidas de las administraciones sanitarias — de las vacunas aprobadas por la OMS y los centros autorizados así como en ciertos casos los nombres de los vacunadores

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ORGANISATION MONDIALE DE LA SANTÉ, COMITÉ D'EXPERTS DES INSECTICIDES

Specifications for pesticides insecticides rodenticides molluscicides and spraying and dusting apparatus 400 pp

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(Véanse también los grupos mixtos de estudio OIHP/OMS de que se hace mención en la sección II al tratar de las distintas enfermedades cuarentenables)

II ENFERMEDADES CUARENTENABLES

COLERA

1947

BIKAUD Y & KAUL, P M

La repartition du cholera dans le monde et son evolution au cours des annees recentes. *Rapp épidém demogr. Epidem. vital. Statist. Rep.*, 1 141-152

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SHOUSHA A T

L'épidémie de cholera en Egypte (1947). Rapport préliminaire. *Bull. Org. mond. Santé* 1 391-422. *Bull. Wld. Hlth. Org.* 1 353-381

1949

GALLUT J

L'analyse complète de l'antigène spécifique du vibron cholérique et ses applications pratiques. *Bull. Org. mond. Santé* 2, 43-47. *Bull. Wld. Hlth. Org.* 2, 39-43

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1950

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SOKHEY S & HABBU M K

Antigenic structure of the cholera vibrio and protective power of the vaccine. *Bull. Org. mond. Santé B II Wld. Hlth. Org.* 3 55-61

SOKHEY S & HABBU M K

Biological assay of cholera vaccine. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.*, 3 43-53

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Casein hydrolysate cholera vaccine. *B II Org. mond. Santé Bull. Wld. Hlth. Org.* 3 33-41

SOKHEY S., HABBU M K. & BHARUCHA K. H. Hydrolysis of casein for the preparation of plague and cholera vaccines. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.*, 3 25-31

1952

GHOSAL, S C. & PAUL, B M

The value of Bandi's test in the rapid diagnosis of cholera. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.* 7 371-373

GILMOUR, C C, B

Period of excretion of *Vibrio cholerae* in convalescents. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.* 7 343-351

KOCH W & KAPLAN D

A cholera medium with more than tenfold yield. *Bull. Org. mond. Santé B II Wld. Hlth. Org.*, 7 353-356

POLLITZER, R.

A note on the incidence and epidemiological importance of cholera carriers. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.* 7 359-369

SWAROOP S & POLLITZER, R.

Reparation de l'endémisme cholérique. *Rapp. épidém. demogr. Epidem. vital. Statist. Rep.* 5 569-589

ORGANISATION MONDIALE DE LA SANTÉ, COMITÉ D'EXPERTS DU CHOLÉRA

Premier rapport. *Org. mond. Santé Sér. Rapp. techn.* 52 18 pp. *Wld. Hlth. Org. techn. Rep. Ser.*, 52 18 pp.

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POLLITZER, R.

Cholera studies 1 History of the disease. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.*, 10 421-462

1955

POLLITZER, R.

Cholera studies 3 Bacteriology. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.* 12, 777-875

POLLITZER, R.

Cholera studies 5 Bacteriophage investigations. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.* 13 1-25

POLLITZER, R.

Cholera studies 6 Pathology. *Bull. Org. mond. Santé Bull. Wld. Hlth. Org.* 13 1075-1199

Nº 2 de la Organización Mundial de la Salud *Org mund Salud Ser Inform técn* 41 103 páginas
Nuevo Reglamento Sanitario Internacional *Crón Org mund Salud* 5 237 244

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Aéroports notifiés en application du Règlement sanitaire international Situation au 22 avril 1955 *Relevé épidém hebdom Wkly epidem Rec* Nº 16 Suppl 3 1 12

Lista de aeropuertos que las administraciones sanitarias, de acuerdo con lo dispuesto en el Reglamento, consideran como provistos de una zona de tránsito recto (es decir una zona especial establecida en el recinto de un aeropuerto o contigua

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Tarifs des droits sanitaires en vigueur au 18 novembre 1955 *Relevé épidém hebdom Wkly epidem Rec* Nº 46 Suppl 5 1 34

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(Véanse también los grupos mixtos de estudio OIHIP/OMS de que se hace mención en la sección II al tratar de las distintas enfermedades cuarentenables)

DDT in the prevention of plague in Ecuador *Bull Org mond Santé Bull Wld Hlth Org* 9 615-618

SOKHEY S WAGLE P M & HABBU M K

Treatment of bubonic plague with sulfonamides and antibiotics *Bull Org mond Santé Bull Wld Hlth Org* 9 637-643

WAGLE, P M & SEAL, S C

Application of DDT BHC and cyanogas in the control of plague in India *Bull Org mond Santé Bull Wld Hlth Org* 9 597-614

ORGANISATION MONDIALE DE LA SANTÉ, COMITÉ D'EXPERTS DE LA PESTE

Deuxième rapport, *Org mond Santé Sér Rapp techn* 74 14 pp *Wld Hlth Org techn Rep Ser*, 74 13 pp

1954

DEVIGNAT R.

Comportement biologique et biochimique de *P. pestis* et de *P. pseudotuberculosis* *Bull Org mond Santé Bull Wld Hlth Org* 10 463-494

POLLITZER R.

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Esta es la obra de los grandes especialistas de la peste en el mundo actual de la enfermedad causada por la peste. Incluye los métodos de diagnóstico y los métodos de la infección, insectos y otros aspectos. Incluye el primer capítulo y previene los peligros de la peste en situaciones actuales del mundo.

1955

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Changes in the epidemiology of plague in Egypt 1899-1951 *Bull Org mond Santé Bull Wld Hlth Org* 13 27-48

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BALTAZARD M ET AL.

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1948

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L'évolution de l'épidémie de fièvre récurrente 1942-1946 *Bull Org mond Santé* 1 99-107 *Bull Wld Hlth Org*, 1 93-101

GAUD M. & MORGAN M T

Etude épidémiologique sur la fièvre récurrente en Afrique du Nord (1943-1945) *Bull Org mond Santé* 1 75-98 *Bull Wld Hlth Org*, 1 69-92

VIRUELA

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CAVAILLON A

Valeur qu'il convient d'attribuer à la vaccination antivaricelle et à la réaction d'immunité *Bull Org mond Santé* 1 38-40 *Bull Wld Hlth Org*, 1 33-35

FABRE, J

Evolution de la variole dans le monde pendant et après la dernière guerre mondiale *Rapp épidém demogr Epidem vital Statist Rep*, 1 268-289

GROUPE MIXTE D'ETUDE OIH/P/OMS SUR LA VARIOLE
Premier rapport. En Rapports des comités d'experts et autres organes consultatifs à la Commission internationale *Actes off Org mond Santé Off Rec Wld Hlth Org* 11 18-20

MACKENZIE, M

Signification de la réaction d'immunité consécutive à la vaccination contre la variole *Bull Org mond Santé* 1 36-37 *Bull Wld Hlth Org* 1 32

STUART G

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CHRONICLE OF THE WORLD HEALTH ORGANIZATION

CONTENTS

	Page
<i>Aedes aegypti</i> eradication in the Americas	347
Malaria eradication in the Eastern Mediterranean and European Regions	354
Pollution of ground water: conclusions reached at the Fifth European Seminar for Sanitary Engineers	362
Epidemiological and Statistical Information	
Mortality from congenital malformations	366
General vital statistics	368
Reports of Expert Groups	
Insecticides and equipment for their application	372
Toxic hazards of pesticides to man	372
Notes and News	
Regional training course for waterworks operators	374
Courses for sanitation personnel	375
Seminar on smallpox eradication	375
Nursing seminar in South East Asia	375
Salmonella strains used for rat control	377
Expert Committee on Health Laboratory Methods	377
Expert Committee on Biological Standardization Tenth Session	377
Regional Committee for Africa	378
Regional Committee for South East Asia	380
Regional Committee for the Americas	382
Regional Committee for the Eastern Mediterranean Sub-Committee A	384
Regional Committee for Europe	386
Regional Committee for the Western Pacific	387
People and places	389
Review of WHO Publications	393

SCHEDULE OF MEETINGS

26 November 8 December	<i>African Conference on Bilharziasis</i> Brazzaville
27 November 3 December	<i>Expert Committee on Rabies</i> Paris
3 10 December	<i>Joint FAO/WHO Technical Meeting on Food Additives</i> Rome
3 10 December	<i>Study Group on Revision of Brussels Agreement of 1924</i> Oslo
4-8 December	<i>Study Group on the Use of Specifications for Pharmaceutical Preparations</i> , Geneva
6-7 December	<i>Borneo Inter Territorial Malaria Conference</i> Kuching Sarawak
10-15 December	<i>Expert Committee on Mental Health</i> Geneva
10-15 December	<i>Expert Committee on Health Statistics</i> Geneva
7 12 January	<i>Standing Committee of the Executive Board on Administration and Finance</i> Geneva
14-20 January	<i>WHO Tuberculosis Workers Conference</i> New Delhi
15 26 January *	<i>Nineteenth session of the Executive Board</i> Geneva
21 26 January	<i>Seminar on Application of International Sanitary Regulations</i> Maracay
31 March 13 April	<i>Regional Training Course on Rabies</i> Caracas
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AEDES AEGYPTI ERADICATION IN THE AMERICAS*

Efforts to control yellow fever through elimination of *Aedes aegypti* began in 1901 when the results of experiments made by Reed Agramonte and Carroll in Havana, Cuba, confirmed the studies of Finlay. The first real success followed very shortly with the work of Gorgas in Cuba and Panama and Emilio Ribas and Oswaldo Cruz in Brazil, who undertook to protect water tanks through mechanical and chemical means and to destroy adult mosquitos.

Inter American co-operation in public health had its inception in December 1902 with the creation of the Pan American Sanitary Bureau (PASB). One of the duties of the new Bureau was "to combat mosquitos" meaning the vector of urban yellow fever, a disease that was then one of the greatest threats to public health on a par with plague, cholera and smallpox. Subsequently protective measures were instituted at ports and adjacent areas and were later extended to all localities from which yellow fever could be carried from one country to another. Campaigns against *Aedes aegypti* were started and the disease was eliminated from many areas.

The success of these early campaigns and the resulting belief that the yellow fever problem had been solved because it had disappeared from urban centres led to a decrease in emphasis on control of this disease between 1910 and 1927. In 1928 however the picture changed, yellow fever broke out again in Rio de Janeiro. In 1929 it appeared in Colombia and in 1932 in Santa Cruz de la Sierra, Bolivia. The circumstances of these outbreaks gave rise to the suspicion that some new factor had entered the scene. This new

factor was identified in 1932 when Soper and his colleagues discovered jungle yellow fever.

Campaigns against *Aedes aegypti* were resumed on the bases previously established and great progress was made in keeping the epidemics from spreading through methods directed against domestic water containers—the potential breeding places of the vector. The Rockefeller Foundation, which had been aiding in the control of yellow fever in several countries, took over and intensified the campaigns. Specialized services were organized among which the National Yellow Fever Service of Brazil was particularly noteworthy.

Oil was utilized in eliminating larvae foci. Its use for this purpose was made compulsory by regulations which at the time were considered truly "Draconian". Valuable lessons were learned in the course of the control campaigns and the idea of actually eradicating *Aedes aegypti* was conceived. The first important step in this direction was attaining an *Aedes aegypti* index of zero in Rio de Janeiro. Other areas in the southern, central and northern parts of Brazil were gradually freed of *Aedes aegypti*. Another accomplishment of similar nature was the elimination of *Anopheles gambiae* from the north eastern part of Brazil in 1940 using techniques based on those employed by the National Yellow Fever Service.

In 1947 the Directing Council of the PASB entrusted to the Bureau the "solution of the continental problem of urban yellow fever based fundamentally on the eradication of *Aedes aegypti* without prejudice to other measures which regional circumstances may indicate." A co-ordinated campaign among the countries concerned was initiated with the assistance of the PASB. This campaign is still in progress.

* This paper was prepared by Dr. Octavio Pinto Serey, PASB Consultant, *Aedes aegypti* eradication.

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other two procedures it does not take full advantage of the residual action of DDT which is rapidly diluted to levels below those which are effective

The idea of applying DDT to central water supplies has found favour in very special cases. Such a technique can solve certain unique problems and serve also as a supplementary measure

For any technique to be successful the organization of the work and the available resources is of primary importance. Efficient and disciplined field teams, adequate transportation and essential equipment and supplies are required whatever the procedure for applying DDT. The essential is that the DDT be applied to all potential breeding places; all else is accessory to this main objective

The criterion for determining whether or not *Aedes aegypti* has actually been eradicated from an area is a negative result in an appropriate number of inspections for the presence of the mosquito. In general, three consecutive negative checks are required; all of them performed within a period of at least one year at intervals of three months or longer and each covering at least one third of the houses in the area

STATUS OF THE ERADICATION CAMPAIGN IN DECEMBER 1955

South America

Argentina

The work begun in 1948 in the northern and north-eastern parts of the country was interrupted several times. On 30 September 1954 an agreement was signed with the Pan American Sanitary Bureau and in June 1955 the campaign was resumed on a more intensive and broader scale. Ecological conditions in Argentina are not very favourable for *Aedes aegypti* but there are large infested areas in the aforementioned regions and also

in the central and south-eastern parts of the country including the capital.

Bolivia

All of the 65 localities which were initially positive in *Aedes aegypti* surveys were found negative in the latest checks. Recently 15 of these localities were checked and the absence of the mosquito was confirmed. According to the standard established for the campaign, *Aedes aegypti* is considered eradicated from this country

Brazil

The most recent checks confirm the absence of *Aedes aegypti* throughout the country including the once highly infested regions in the east and north-east. Surveys are being repeated to confirm eradication. In the past the yellow fever problem in Brazil represented at least half of that for the whole of the Western hemisphere

British Guiana

Of the 93 initially infested localities an area of Georgetown and two localities near the capital which were previously considered *aegypti* free were again found positive. It is expected that the situation will easily be brought under control in order that eradication of the vector from British Guiana can be achieved

Chile

The campaign in this country is in its final stage

Colombia

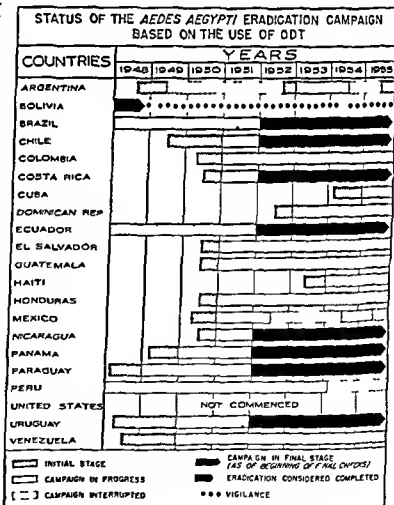
Political developments and shortage of personnel have delayed progress of the campaign in this country where the work could have already reached its final stage. Perifocal application of DDT in the cities and spraying

As the PASB acts as the WHO Regional Office for the Americas, it has been able to obtain funds from United Nations Technical Assistance for *Aedes aegypti* eradication efforts. In addition, UNICEF has contributed to insect control programmes in the Americas which have done much to further the cause of eradicating *Aedes aegypti*. The work is co-ordinated through the PASB Zone Offices in Mexico, Guatemala, Jamaica, Lima, Rio de Janeiro, and Buenos Aires.

DDT IN Aedes Aegypti ERADICATION

DDT has proved very effective in combating *Aedes aegypti*. Its prolonged residual action ensures a sufficient margin of safety with respect to its efficacy; it is completely harmless to man and domestic animals when used in the proper dosage, and it can be used in several forms—powder, suspension, emulsion, or solution. As an adulticide, DDT may be applied to the total surface in an intra-domiciliary process which aims to reach every internal part of dwellings, as is done in combating malaria vectors, or it may be used outside and inside water containers with or without water and on nearby walls in a technique termed perifocal. It may also be utilized as a larvicide applied inside water containers with or without water. The first or "intra-domiciliary" process is undoubtedly the most effective since it offers the best possibilities of destroying the existing adult mosquitoes and, by reaching the water containers

also destroys the aquatic forms. However, this process is too expensive and slow to be adopted in an intensive campaign in which the time factor and available resources have to be taken into account. The perifocal technique is based on well-known biological characteristics of the mosquito and tries to take all possible advantage of the residual action of DDT with less expense and greater rapidity of application. In the larvicide method, DDT applied only inside the water containers with or without water, eliminates the existing foci and can prevent the creation of others. It is the simplest method inasmuch as it dispenses with sprayers but, unlike the



Venezuela

Following an outbreak of jungle yellow fever in 1954 the anti-*aegypti* work was intensified principally in the capital which was threatened by the invasion of the virus. The results of the special measures taken are not yet known but the *aegypti* index in some sectors of Caracas was quite high. It is hoped that with available resources a plan can be established to use the perifocal method to achieve eradication throughout the country. Of 251 localities thus far found with an initially positive index 147 are negative 24 positive and 80 awaiting check.

Central America

British Honduras

Aedes aegypti were found in only two localities after DDT application against malaria in a large part of the inhabited areas of the country. The final check is to be made during 1956.

Canal Zone

Aedes aegypti is considered eradicated from the Canal Zone but there are no statistical reports to confirm this.

Costa Rica

All of the 104 originally infested localities were confirmed as negative in the latest checks. The campaign is in its final stage.

El Salvador

Of the 190 originally infested localities all have been treated and checked. Only one the capital continues positive. The campaign must be extended to all areas of the country where *Aedes aegypti* might be found.

Guatemala

The 138 originally positive localities were confirmed as negative in recent surveys.

The status of the campaign in this country has improved greatly.

Honduras

According to the results of the checks the 53 previously infested localities continue negative. Certain areas of the country must be investigated before *Aedes aegypti* can be considered eradicated.

Nicaragua

The 18 localities initially found positive in the entire country continued to be negative in the latest checks.

Panama

All the 41 initially positive localities have been confirmed as negative in recent checks. A final review of the work is to be made in 1956.

Caribbean Islands

Bahamas

The recently initiated campaign has not as yet achieved appreciable results.

Bermuda

After repeated DDT application *Aedes aegypti* is considered eliminated from this island though no statistical data to confirm this are available.

Cuba

Sufficient time has not elapsed to evaluate the results of the campaign initiated in Cuba in March 1954. Havana where the index was very high has already been treated twice with DDT perifocally. The campaign has now been extended to Marianao Casablanca Santa Clara Pinar del Rio Matanzas Camaguey and Santiago de Cuba. Infestation of the island is generalized.



French Guiana

Checks have confirmed the absence of the mosquito in the 55 previously infested localities. On the basis of the reports on the campaign *Aedes aegypti* is considered eradicated from French Guiana.

Paraguay

The latest checks by capture in the 98 previously infested localities gave negative results. The campaign is in its final stage.

Peru

The checking programme was interrupted for lack of funds, in mid 1954 when the 191 previously infested localities were already negative. The campaign is in its final stage but the situation in areas treated with DDT against malaria must be studied in order to confirm whether *Aedes aegypti* has been eradicated.

Surinam

A plan of attack against *Aedes aegypti* has not yet been implemented in Surinam where infestation indices are known to be high in the principal localities.

Uruguay

The campaign is considered to be in its final stage. The work is being completed in Montevideo and the 132 previously infested localities in the interior continued to show negative results in the latest surveys.

Ecuador

The 337 previously infested localities have been confirmed as negative. The campaign in Ecuador is considered to be in its final stage.

Venezuela

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Haiti

The first perifocal DDT applications in Port au Prince were made irregularly but in more recent application the work has improved and has resulted in an appreciable decrease in the *aegypti* index. In the rural area near the capital and in small areas in the north east of the country residual DDT has been applied against malaria in 585 localities originally infested with *Aedes aegypti*. Of these only 395 localities have been checked 19 of which continue infested.

Dominican Republic

The situation in the capital is not satisfactory, owing to initial technical faults that resulted in resistance of *Aedes aegypti* to DDT in certain sectors of the city. Steps are being taken to cope with the situation. The work in large areas in the interior continues to progress. A large part of the rural regions is being sprayed with DDT against malaria in a campaign co-ordinated with *Aedes aegypti* eradication. Of 221 initially positive localities 10 continue positive and 71 are pending check.

Jamaica

All 14 parishes have infected localities. The campaign must be intensified on this island.

Puerto Rico

The DDT applications against malaria have lowered the *aegypti* index in a large part of the island. Checks made after treatment of the 233 initially infested localities have revealed the continuing presence of the mosquito in 101 localities including the capital. The campaign on this island must be improved.

Lesser Antilles

Barbados

Of the 95 infested localities 82 continue positive and 10 are pending check.

St Croix and other islands

The local health authorities consider *Aedes aegypti* to be eradicated on St Croix, but no data to substantiate this are available. Saint Thomas, San Juan, Anegada, Virgen Gorda, Tortola and Jost Van Dykes continue infested.

Saint Kitts, Nevis, and Anguilla

Investigations on these islands showed 34 localities positive 18 of which continue infested.

Antigua, Barbuda, Redonda and Montserrat

High infestation was found on these islands and a campaign against *Aedes aegypti* has begun.

Saint Martin, Saint Bartholomew and Les Saintes

Aedes aegypti have been found and a plan of eradication is expected to be implemented.

Désirade, Marie Galante and Guadeloupe

No specific eradication campaign is being carried out, but the *Aedes aegypti* indices probably are not very high because of the DDT applications against malaria. Work may be started in 1956.

Martinique

Reports on the campaign on this island indicate that 33 localities were found positive 6 of these continue positive and 11 have yet to be checked.

Saint Lucia Grenadines and Grenada

The initially high infestation indices declined after a programme was started in 1953. In Saint Lucia of the 50 originally positive localities 47 were confirmed as negative and 3 continued positive. In Grenada only one of the 10 initially infested localities continues positive.

Dominica and Saint Vincent

Investigations in 1951 revealed infested areas which are being sprayed with DDT in a campaign against malaria. Checks indicate that of the 65 initially infested localities in Dominica 18 continue positive, 13 have not yet been checked. In Saint Vincent 6 of the 9 positive localities continue infested.

Trinidad and Tobago

High initial indices were found in Port of Spain, San Fernando and other cities. The appearance of cases of yellow fever in Trinidad in 1954 drew much attention to this island where *Aedes aegypti* indices continue to be high, including the semi-rural section near the jungle areas where the yellow fever virus was revealed in monkeys and mosquitos. In Port of Spain the indices dropped to less than 1% beginning on 30 October 1954 according to weekly reports from the director of the medical services, but 77 of the 114 infested localities continue to be positive and 19 are pending check. Tobago was considered free from *Aedes aegypti* but recently the mosquito was found there by the technical personnel of the PASB.

Curaçao Aruba and Bonaire

An intensive eradication programme has been initiated using dieldrin for the first time on walls of houses to combat *Aedes aegypti*. The *aegypti* indices are high on all three of the islands.

North America

Mexico

When the campaign was interrupted for the second time in August 1955, 159 localities of the 428 originally found positive were still infested. The most heavily infested areas are on the Yucatan peninsula and along the Atlantic and Pacific coastlines. The jungle virus which is present near the Guatemalan border is a constantly increasing threat.

United States of America

The yellow fever receptive area comprises the States of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee and Texas, as well as that part of Arizona and New Mexico south of a line extending from the north west limits of Oklahoma to the south west limits of Arizona and the Mexican border.

According to a study published in 1953¹ investigations during the Second World War showed that 16 cities had *aegypti* indices ranging from 1/ to 21/. In surveys made in 1952, 10 of these cities continued to be positive and the indices in 4 of them were even higher than before. Twelve additional cities for which no previous data were available were also surveyed in 1952 and 7 of them were found to have indices ranging from 0.5/ to 11.3/.

The mosquito is considered eradicated from Key West, Fla. since it has not been found there for two successive summers.

There is now greater interest in the USA in undertaking a campaign to eradicate *Aedes aegypti*.

• • •

Bradley G. H. & Atchley F. O. (1953). The *Aedes aegypti* situation in the U. S. I. Proc. 1st Int. Conf. on Mosquitoes, 1952, pp. 104-108.

The first figure shows the status of the *Aedes aegypti* eradication campaigns in some of the countries concerned and the second shows the areas that are free from this vector and those that are still infested

The number of countries participating in

the *Aedes aegypti* eradication campaign increased from 4 in 1948 to 20 in 1955 the number of territories from 0 to 15 Only one country and three territories have yet to join the effort to free the Americas from *Aedes aegypti*

MALARIA ERADICATION IN THE EASTERN MEDITERRANEAN AND EUROPEAN REGIONS

In its role as co ordinator and technical guide in the world wide programme to eradicate malaria WHO endeavours to keep abreast of the progress made in individual countries, to evaluate new developments in the light of over all strategy and to pass on to the health administrations concerned any information which may aid them in their malaria eradication efforts One method by which all of these ends is furthered is bringing together malaria workers from a number of countries to review the situation in their respective areas and to discuss common problems and possible solutions to them This was the purpose of the WHO sponsored Inter Regional Conference on Malaria for the Eastern Mediterranean and European Regions, held in Athens in June 1956

PRESENT STATUS OF MALARIA IN THE TWO REGIONS

The Conference participants provided data on the prevalence of malaria in their countries and on the progress made in its control It was pointed out that the figures for malaria morbidity and mortality from different countries are not comparable because of lack of uniform statistical methods from one country to another For example in Morocco clinically

diagnosed cases are recorded as malaria, whereas in Algeria only cases confirmed by blood examination are recorded Further more variations may be found in statistics provided by national health administrations as compared with those from national statistical services The need for more co ordination and for a single standardized method for recording statistics was emphasized

Eastern Mediterranean Region

The total population of the countries and territories of the Eastern Mediterranean Region is about 170 million people of whom not less than 100 million live in potentially malarious areas Considerable attention has been given to malaria control by many governments in the Region in recent years in some instances with aid from WHO and from the figures available it is estimated that about 26 million persons have already been protected against malaria

Today large scale or nation wide anti malaria programmes are either in progress or in the planning stage with eradication as the goal in Iran Iraq Israel Jordan Lebanon and Syria In Cyprus malaria eradication has already been achieved The annual per person cost of these eradication

programmes ranges from US \$0 20 to \$0 65 the average being \$0 38

Israel has come near to eradication of the disease after seven years of intensive control measures and it is believed that success will be realized within the next three years provided that regional co-ordination ensures the prevention of re infection from neighbouring countries. The cost in Israel has been high however because of a number of factors the presence of several vector species and the resulting long transmission season the development of irrigation systems and the accelerated rhythm of new building construction the rapid loss of insecticide from wall surfaces and the extensive immigration. Such factors have made it impossible to achieve interruption of transmission of malaria by means of a single annual spraying of residual insecticides and have necessitated the application of supplementary measures.

In the southern countries of the Eastern Mediterranean Region, including Sudan Ethiopia and Somalia pilot projects are preparing the way for future eradication programmes by training national personnel and finding solutions to the many technical problems.

Europe

In Europe only the southern countries are affected by malaria and these can be grouped as follows with regard to the status of malaria eradication.

(1) countries or areas where eradication can be considered to have been achieved—Italy including Sardinia and Sicily Corsica and Crete (in Greece this achievement has been handicapped by the appearance of resistance in the vectors)

(2) countries which have nation wide control and are on the way to achieving eradication—Albania, Bulgaria Portugal Spain Romania and Yugoslavia

(3) countries where control is being or has still to be orientated towards eradication—Algeria Morocco and Turkey

The most spectacular and rapid results have been obtained in Italy and Greece. Events in Greece have provided both a lesson and a warning the maintenance of control in spite of interruption of spraying has shown that insecticide application may be stopped after some years without the reappearance of malaria the development of resistance to chlorinated hydrocarbon insecticides in *A. sacharovi* has given a warning that the best weapon against malaria may lose its efficacy. In Italy there has been no sign of resistance to insecticides and malaria eradication has been virtually achieved even though vector anophelines (*A. labranchiae*, *A. superpictus* and *A. sacharovi*) still persist in certain provinces.

TECHNICAL ASPECTS OF MALARIA CONTROL IN THE TWO REGIONS

Generally speaking residual insecticide spraying is effective for the control of transmission of malaria by the various vectors found in the Eastern Mediterranean and European Regions. However there still exist in some places local conditions which make antilarval measures necessary. For example in areas where malaria is transmitted by *A. sergenti* a species not always controlled by residual insecticide spraying. Stress was laid at the Conference on the need for careful study of the bionomics of the various vector species particularly of elusive vectors such as *A. sergenti* and *A. claviger* before any specific control method could be considered.

The Conference participants discussed in detail the means of eliminating persistent foci of malaria infection or transmission. Such foci require "emergency" treatment—

total coverage spraying of the locality concerned as quickly as possible, and administration of antimalarial drugs as indicated by the circumstances

Special difficulties

Difficulties of a practical nature are common in many parts of the two regions because of particular types of dwellings and of certain ways of living. For example, in some areas the absorbent nature of the wall surfaces presents a problem. Another technical difficulty of similar nature is that presented by smoke deposits on sprayed walls. Still another practical difficulty arises from the overcrowding of the houses in some places which causes the insecticide to be rubbed off the walls.

Movements of population are of concern in malaria control especially in the Eastern Mediterranean Region where each year about 60 000 people from certain countries where malaria eradication is likely to be attempted together with travellers from other countries make the pilgrimage to Mecca and other holy cities of the Islamic faith. At the present time the Saudi Arabian Government is trying to control malaria in and around the holy cities to train more personnel for malaria eradication, and to prepare an annual report summarizing the results of malariometric surveys and other relevant work. However certain measures on the part of the health administrations of the other countries concerned would seem to be in order. The disinfection of ships, aeroplanes, trains, and motor vehicles used by pilgrims should be carried out at the frontier port or airport receiving the pilgrims by the health authorities of all governments implementing malaria eradication programmes and a record of each pilgrim should be kept at the ministry of health of his own country and all such pilgrims kept under observation by a surveillance service with a blood exam-

ination of every pilgrim being carried out once a month during the malaria transmission season and a full course of treatment with chloroquine and primaquine being given to every positive case.

Other population movements to which malaria control services must pay special attention are those of nomadic groups of whom there are many in the Middle East migratory labourers, and the people who temporarily transfer their place of residence from mud houses to tents or huts during the warm season or from winter premises to mountain cottages depending on the locality. The problem of tribal movements in relation to malaria control needs further study, particularly with regard to the impregnation of tents with insecticides, drug prophylaxis, blanket spraying of all villages in a given area and full knowledge of the activity of the tribes.

Still another problem which arises in some countries of the two regions—Syria, Turkey, Portugal, and Greece for example—is that presented by areas where there are rice fields which provide all the necessary elements for the breeding of certain species of anopheline mosquitos. Solving the technical difficulties involved in malaria control in such areas calls for full collaboration between agriculturalists, engineers and malariologists and in some cases special legislation regarding rice cultivation in relation to malaria control may be necessary.

Collective immunity

The question of collective immunity to malaria was considered at the Conference. Fears have frequently been expressed concerning the loss of immunity which might be expected to result from the interruption of transmission and the danger which this would constitute for the community should malaria be reintroduced. It is generally believed that immunity varies from country to country.

according to variations in endemicity. It is recognized that there is a certain degree of racial immunity apparently confined to *P. vivax* in individuals of Negro stock. Further, there is evidence of some degree of transitional immunity in African infants and perhaps in children in holoendemic areas. While the existence of a true immunity in the absence of parasites is not universally accepted, some may persist for a long period against *P. vivax* and for a shorter but still considerable time against *P. falciparum*.

The predominant epidemiological picture in the Eastern Mediterranean and European regions is that of seasonal malaria with comparatively long periods during which no transmission takes place—a condition which would seem unfavourable to the establishment of immunity comparable to that observed in Africa. Serious study of this question is urgently required, but it may be said that the initial observations which have been made in Greece in areas where transmission had been interrupted but where the disease has now reappeared are reassuring. In these areas cases which have occurred have been mild, shown low parasitaemia, responded easily to treatment, and had a low relapse rate. Epidemics have been localized and of short duration.

It is also of interest that the number of cases of malaria among Greek troops serving in Korea was limited to five or six cases as compared to a much higher incidence among United States troops. However, immunity cannot be regarded as a continuing safeguard, since it is well established that epidemics may arise some five or six years after cessation of transmission if the disease is reintroduced.

Use of antimalarial drugs

Anopheline resistance to insecticides and failure of residual insecticides to achieve the desired results in some instances have led to a re-evaluation of the role of antimalarial

drugs. In areas where for any reason the application of insecticides has failed to interrupt transmission, chemotherapy remains the sole auxiliary measure which can be usefully employed. It is important, too, in the treatment of residual cases during the last phase of spraying operations and during the years of surveillance which follow the cessation of spraying.

Experiments in chemotherapy are being conducted in various countries. In Morocco a striking reduction in malariological indices has been achieved both in endemic areas and during epidemics by the administration of monthly doses of chloroquine or amodiaquine at a dosage of 10 mg per kg of body weight or by doses of pyrimethamine of 25 to 50 mg. And in a trial in Brazil chloroquine has been distributed to the population by mixing it with common salt, a procedure which is being further investigated in a WHO sponsored series of controlled experiments.

Surveillance

It was pointed out at the Conference that the process of malaria eradication which begins with the spraying of insecticides consists in its final stages of surveillance, which is perhaps the most difficult phase. Interest lessens as fear of the disease recedes and the indifference of the public is matched by the failure of the authorities to understand why requests for funds continue when the transmission of the disease has practically ceased and there remain only a few rare cases of malaria, which it is hard to conceive as being possible sources of a new outbreak of infection. Surveillance consists of detecting these remaining cases and is an absolute essential to gaining the object of eradication.

To give an adequate margin of safety, systematic spraying should be carried out for four years when spraying is discontinued, surveillance must be fully active. Surveillance

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To give an adequate margin of safety, systematic spraying should be carried out for four years when spraying is discontinued, surveillance must be fully active. Surveillance

teams are responsible for investigating all cases of fever within the shortest possible time. Thereafter, therapeutic measures are applied as required and if necessary, spraying is recommenced.

Different systems of surveillance have been set up in the countries of the Eastern Mediterranean and European Regions.

In Italy, surveillance is carried out under the direction of the special committees which were previously in charge of spraying operations. Any case detected is notified by telegram by the doctor treating the case, blood smears are sent for verification to the Istituto Superiore di Sanità, and an epidemiological investigation is carried out with a view to distinguishing primary cases from cases of relapse.

In Greece the villages under surveillance are divided into three categories and are visited every ten to thirty days according to the incidence of the disease in the locality. There is also provision for mobile units: one stationed in Athens and one in Salonica which can be moved to the points where their presence seems to be required.

In Yugoslavia there is a federal committee composed of one or two malariologists in each republic where malaria still exists. All cases of malaria which come to light must be notified to the head of the malaria service of the republic and the treatment of patients with mepacrine is compulsory. Spleen and parasite rates of children of school age are taken each year in October.

Pakistan has a rural health organization which with the addition of a few extra workers for taking blood samples and a few microscopists would be able to carry out proper surveillance operations.

In Iran the surveillance service is under the technical supervision of the Institute of Malariology and under the administrative supervision of the Malaria Eradication Division of the Department of Public Health. It has one surveillance agent for every 25

villages which are visited once a month. Blood samples are taken from infants less than one year old and from fever cases. Pyrimethamine is administered to the latter on the spot. For every three surveillance agents there is one supervisor who is responsible for supervising their activities for sending the collected blood smears to the laboratory, and for seeing that the necessary measures are taken when examination shows a case to be positive.

Surveillance operations are costly. For example it has been estimated that in Venezuela, where eradication has been practically achieved, the cost of the discovery of a single positive case by the special eradication service is equivalent to US \$300.

MALARIA VECTOR RESISTANCE TO INSECTICIDES

One of the principal topics of discussion at the Conference was anopheline resistance to insecticides. The story of the initial observation of insecticide resistance in Greece is now a familiar one. In 1951 in the Peloponnese *A. sacharovi* was found in abnormal numbers in premises treated with DDT and did not appear to be affected by contact with sprayed surfaces. Later observations confirmed physiological resistance of this vector not only to DDT, but also to chlordane and BHC although the last two insecticides had never before been used in the area concerned. Instances of this same resistance were also reported in other Greek provinces in 1952 and 1953 and it became clear in addition that DDT spraying was less effective against two other vectors *A. superpictus* and *A. maculipennis*.

Study of the subject in Greece has shown that there is a progressive increase in the resistance of *A. sacharovi* to DDT from one year to the other within the same area and that at the present time normal doses of DDT have practically no effect on *A. sacharovi*.

and very little on the other two vectors the efficacy of the action of chlordane on any of the malaria vectors is reduced and the residual effect of dieldrin seems to persist for not more than from three to four weeks.

From epidemiological observations in Greece at the time resistance first made its appearance and while it was developing it would appear that although the situation is a matter of some concern it is not as serious as might have been feared and no definite connexion has been noted between the development by the vector of resistance to insecticides and the distribution of malaria incidence. Even assuming that there were actually ten times as many malaria cases as are brought to light by the existing system of surveillance—that is 15 000-20 000 cases a year—this would still be far from the 12 million cases of clinical malaria which occurred in Greece before DDT was used. There is as yet no exact explanation for the appearance of anopheline resistance in Greece though various hypotheses have been put forward—e.g. the spraying of marshlands from the air with a reduced dosage rate (12 mg per m²) the simultaneous use of insecticides for medical and agricultural purposes and the widespread use of sprays by individuals.

Other cases of anopheline resistance have been reported. *A. sacharoni* proved resistant to DDT in some areas of Lebanon in 1954. *A. sundicus* displayed DDT resistance in some small foci in Java and *A. stephensi* in one area of Saudi Arabia in 1955 and *A. gambiae* showed a high degree of resistance to dieldrin in Northern Nigeria after this insecticide had been used for only 18-24 months.

A number of scientific institutes are now investigating insect resistance to insecticides. Work at the Ross Institute London on dieldrin resistant *A. gambiae* from Nigeria has yielded two important results. (1) poly valent resistance has been developed to

chlordane dieldrin aldrin isodrin and BHC but not to DDT and similar preparations and (2) this resistance has been inherited in accordance with Mendelian principles. It was possible to obtain a clear definition of the Mendelian characteristics and to recognize three distinct types of individual the susceptible type the hybrid type and the resistant type. There was a marked difference between the median lethal concentration (LC₅₀) for each of the groups and each group could be distinguished from the other by experimental means. These facts show that it might be possible to recognize a small proportion of hybrids in an anopheline population and so foresee the development of resistance or at all events recognize it as soon as it occurred. The problem of dealing with resistance might thus be simplified to finding the most suitable dose for exterminating hybrids.

The question was raised at the Conference whether it would not be wise to keep certain insecticides in reserve for use only in case of epidemics which could not be overcome on account of resistance developed by local anophelines to the insecticides used up to that time. For example diazinon has been found effective in Greece for both anophelines and culicines and while its residual action is of short duration its immediate killing effect is so great that it could well be used in an emergency—for instance during epidemics of malaria in areas where vectors are resistant to the chlorinated hydrocarbon insecticides. Dieldrin has been found effective for three to four weeks against DDT resistant mosquitoes in Greece. Resistance to BHC seems to be less well developed so that if a change is to be made to the BHC-chlordane group it is advisable to select BHC.

In order to find a solution for the control of resistant anopheline species it is advisable to study the spectrum of susceptibility of anopheline species to various insecticides before any changes are adopted. If this is

not possible within the country itself outside or international aid should be sought. In this connexion it is probably best to use DDT in the first instance and to change to another insecticide only when DDT fails, selecting the new insecticide on the basis of the spectrum of susceptibility.

It is essential that field checks be made so that the development of resistance may be noted at the earliest possible moment and so that the necessary action may be taken at the appropriate time. If the range of lethal concentrations of insecticide is determined before control operations begin this can be used afterwards for detecting the presence of resistance. Biological characteristics, density, survival rates, resting and feeding habits, and other pertinent information concerning the vector species should be collected so that any future behaviouristic changes may be detected. Susceptibility tests should be performed in different seasons of the year as there are indications of the existence of seasonal variations in the susceptibility of anophelines to insecticides.

ORGANIZATIONAL AND ADMINISTRATIVE ASPECTS OF MALARIA ERADICATION

After discussing the malaria situation in each of the countries of the Eastern Mediterranean and European regions the Conference participants came to the conclusion that malaria eradication was both practicable and advisable in almost all of the areas of the two regions in which malaria is a problem. They proceeded to outline a policy for accomplishing this end.

An eradication scheme is more likely to fail because of lack of preparation or organization, or because of some fault in the administrative machinery, rather than because of a technical breakdown. Prerequisites for embarking on an eradication programme therefore include (1) a carefully worked out

plan (2) adequate arrangements for putting the plan into effect, (3) official regulations and suitable legislation (4) provision for a budget covering the operations as a whole (5) effective government backing (6) co-operation between all medical and health bodies both official and private and (7) education of the general public.

Personnel

The success of a malaria eradication programme, as of any other public health programme, depends to a very large extent upon the quality and the working ability of the personnel involved. The training of such personnel must be given due consideration and teaching institutes created if necessary.

Mention was made at the Conference of a difficulty encountered in malaria-control operations almost everywhere—that of retaining personnel once they have received the necessary training. Arrangements must be made to assure malaria workers of a stable future in the health services. In addition, every effort must be made to bring all public health personnel into the picture of malaria eradication.

Integration into general health services

In countries where the public health services are not yet well developed the malaria eradication programme may provide a nucleus around which to build such services. It is evident that eradication of malaria will in due course eliminate the need for malarialogists and other personnel engaged in this work and it should be foreseen that these workers will eventually be assigned to other tasks. The Conference participants suggested that it might be useful to call eradication workers public health workers assigned to malaria, bearing in mind that any type of disease control is a part of a general public health programme. Training of personnel should be planned from the beginning.

with this orientation and professional staff should always have in view the eventual integration of the malaria programme into that of general public health

Co-ordination of effort

WHO has recommended that eradication programmes should be planned with a view to the simultaneous eradication of malaria from as large an area as possible that such an area should preferably be bordered by areas where there is no transmission either naturally or as a result of control and that in any case the plan should always envisage the expansion of the area until it meets such borders. This type of planning requires the co-ordinated effort of neighbouring countries and the Conference participants devoted considerable attention to this important subject

Co-operation between countries in malaria eradication means that each country should assume certain responsibilities including

(1) an all-out effort to achieve eradication of malaria throughout its territory with subsequent maintenance of appropriate surveillance and particular attention to border areas

(2) special consideration and precautions regarding movements across frontiers so that the risk of introduction of infection into malaria free territories may be avoided

(3) measures to safeguard inter-country travellers including pilgrims from the risk of malaria infection during their journey

(4) maintenance of reliable malaria statistics and the preparation of antimalaria progress reports and the free exchange of such information between interested countries

(5) mutual agreement on quarantine measures when these become appropriate

Attention was called at the Conference to the advisability of instituting an international standardized system of recording data. Standardization would enable accurate comparisons of data and costs between different countries to be made and would facilitate the desired collaboration between countries

The value of periodic inter-country and inter regional conferences in promoting malaria eradication was stressed at the Conference which itself gave adequate evidence of the benefits gained from a discussion of problems of mutual interest and an exchange of scientific information among malaria experts from 18 countries¹

¹ Algeria, Ceylon, China, France, Greece, India, Iran, Israel, Italy, Mexico, Nigeria, Pakistan, Portugal, Spain, Turkey, United Kingdom (Great Britain and Northern Ireland), Venezuela and Yugoslavia. Professor G. Abbiadori (Genève) was Honorary President of the Conference. Professor G. Raffaele (Italy) was Chairman and Colonel M. K. Afshar (Pakistan) Vice-Chairman. Médecin-Général Inspecteur M. A. Vassal (France) and Dr Ch. M. Sidi (Iran) were Rapporteurs.

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Mention was made at the Conference of a difficulty encountered in malaria control operations almost everywhere—that of retaining personnel once they have received the necessary training. Arrangements must be made to assure malaria workers of a stable future in the health services. In addition, every effort must be made to bring all public health personnel into the picture of malaria eradication.

Integration into general health services

In countries where the public health services are not yet well developed, the malaria eradication programme may provide a nucleus around which to build such services. It is evident that eradication of malaria will in due course eliminate the need for malarialogists and other personnel engaged in this work, and it should be foreseen that these workers will eventually be assigned to other tasks. The Conference participants suggested that it might be useful to call eradication workers, public health workers assigned to malaria, bearing in mind that any type of disease control is a part of a general public health programme. Training of personnel should be planned from the beginning.

with this orientation and professional staff should always have in view the eventual integration of the malaria programme into that of general public health

Co-ordination of effort

WHO has recommended that eradication programmes should be planned with a view to the simultaneous eradication of malaria from as large an area as possible that such an area should preferably be bordered by areas where there is no transmission either naturally or as a result of control and that in any case the plan should always envisage the expansion of the area until it meets such borders. This type of planning requires the co-ordinated effort of neighbouring countries and the Conference participants devoted considerable attention to this important subject

Co operation between countries in malaria eradication means that each country should assume certain responsibilities including

(1) an all out effort to achieve eradication of malaria throughout its territory with subsequent maintenance of appropriate surveillance and particular attention to border areas

(2) special consideration and precautions regarding movements across frontiers so that the risk of introduction of infection into malaria free territories may be avoided

(3) measures to safeguard inter-country travellers including pilgrims from the risk of malaria infection during their journey

(4) maintenance of reliable malaria statistics and the preparation of antimalaria progress reports and the free exchange of such information between interested countries

(5) mutual agreement on quarantine measures when these become appropriate

Attention was called at the Conference to the advisability of instituting an international standardized system of recording data. Standardization would enable accurate comparisons of data and costs between different countries to be made and would facilitate the desired collaboration between countries.

The value of periodic inter-country and inter regional conferences in promoting malaria eradication was stressed at the Conference which itself gave adequate evidence of the benefits gained from a discussion of problems of mutual interest and an exchange of scientific information among malaria experts from 18 countries¹

¹ Algeria, Ceylon, China, France, Greece, India, Iran, Israel, Italy, Morocco, Nigeria, Pakistan, Portugal, Spain, Sweden, United Kingdom, United States of America, USSR, Thailand, Venezuela, and Yugoslavia. Professor G. Alvarado (Greece) was Honorary President of the Conference. Professor G. R. S. (Italy) was Chairman, and Colonel N. K. Afidi (Pakistan) Vice-Chairman. Médou-Géral, Inspecteur M. A. V. (France) and Dr. M. B. (India) were Rapporteurs.

not possible within the country itself outside or international aid should be sought. In this connexion it is probably best to use DDT in the first instance and to change to another insecticide only when DDT fails, selecting the new insecticide on the basis of the spectrum of susceptibility.

It is essential that field checks be made so that the development of resistance may be noted at the earliest possible moment and so that the necessary action may be taken at the appropriate time. If the range of lethal concentrations of insecticide is determined before control operations begin this can be used afterwards for detecting the presence of resistance. Biological characteristics, density, survival rates, resting and feeding habits and other pertinent information concerning the vector species should be collected so that any future behaviouristic changes may be detected. Susceptibility tests should be performed in different seasons of the year as there are indications of the existence of seasonal variations in the susceptibility of anophelines to insecticides.

ORGANIZATIONAL AND ADMINISTRATIVE ASPECTS OF MALARIA ERADICATION

After discussing the malaria situation in each of the countries of the Eastern Mediterranean and European regions the Conference participants came to the conclusion that malaria eradication was both practicable and advisable in almost all of the areas of the two regions in which malaria is a problem. They proceeded to outline a policy for accomplishing this end.

An eradication scheme is more likely to fail because of lack of preparation or organization, or because of some fault in the administrative machinery rather than because of a technical breakdown. Prerequisites for embarking on an eradication programme therefore include (1) a carefully worked out

plan, (2) adequate arrangements for putting the plan into effect, (3) official regulations and suitable legislation, (4) provision for a budget covering the operations as a whole, (5) effective government backing, (6) co-operation between all medical and health bodies both official and private and (7) education of the general public.

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The excellent bacterial and organic quality of ground water indicates as has been repeatedly demonstrated that permeable formations possess a capacity for purifying water. This purifying capacity depends on physical, chemical and biological processes and so long as it is not overtaxed it remains constant. All people who use ground water take advantage consciously or unconsciously of this purifying capacity. In an age when mankind is adapting more and more of the resources of nature to his own use, he is following the general trend when he enlists in his service the natural purifying capacity of the ground to its maximum extent.

It is essential, however, to take heed of the fact that if the purifying capacity of the ground is overtaxed, undesirable phenomena occur, some of which are irreversible. The pollution may not be removed; the pores of the formations may become clogged; the water may pick up iron and manganese or sulfide; it may become too saline or acquire objectionable tastes; and it may carry disease. Increased demands on the purifying capacity of permeable ground formations must therefore be made with great caution and with full knowledge of the overall situation, and no one should be lulled into a false sense of security because the undesirable effects are long delayed.

A paper was presented at the Seminar on a quantitative study carried out in the Netherlands on the rate of purification as water passes through fine sand under natural conditions. In the discussion which ensued it was mentioned that parallel investigations are being made with regard to other kinds of soils in Austria, Germany, Sweden, and the USA. It was suggested that WHO might promote collaboration among research workers of different institutes in studies of this kind, which should comprise field work under natural conditions as well as semi-technical investigations of various kinds of soil in containers and of various types of pollution.

Bacterial pollution of ground water is the most important danger, but it is perhaps the most readily removed by filtration through several metres of ground if the interstices are small. Cases have been cited of disease being transmitted by ground water. It is essential for modern civilization that all communities where houses are close together should have either a piped water supply or a sewerage system carrying human wastes well away from a source of water supply, preferably both. When houses are more scattered, all wells should preferably be on the up-stream side of, and as far away as possible from, any site for sewage disposal. Drawing water from depths well below the water table may also be a contribution to safety, since pollution has a tendency to be greater near the free water surface.

The role of viruses in the spread of disease by ground water has been insufficiently explored.

A water which is bacteriologically safe may still be undeniably contaminated with organic matter from sewage or other sources; this type of matter is not removed as rapidly as the bacteria. Organic matter requires oxygen for its mineralization, and it is better if the oxygen is atmospheric oxygen, which is available in ample quantities only near the surface. Moreover, soil near the surface contains quantities of humus material which is the abode of organisms which can effectively oxidize organic matter. For both these reasons, organic matter should be allowed on to the ground only under conditions where it is not carried far below the surface before oxidation is substantially complete. These conditions depend upon the nature of the organic matter, its total amount, and its concentration when applied. For example, it is useless to flood an area of land permanently with an industrial organic waste and hope that it will soak away and be oxidized. Sufficient oxygen would not be available. Cases have been cited of gross ground water

POLLUTION OF GROUND WATER

Conclusions Reached at the Fifth European Seminar for Sanitary Engineers

In most European countries, the great majority of the people are supplied, or supply themselves, with water from beneath the ground. Developments of modern civilization—for example the growth of urban areas, the greater use of water in the home, and the continual expansion of industry—constitute a threat to the quality of this water which it is vitally necessary to counter. Ground water may become polluted with substances such as human excreta, sewage, garbage, manure, fertilizers, industrial wastes, mineral oils escaping from storage or during transport, toxic chemicals sprayed for various purposes, and radioactive substances. The implications for public health are obvious.

Ground water pollution was the principal subject considered at the Fifth European Seminar for Sanitary Engineers which was held under the auspices of the WHO Regional Office for Europe in late July 1956 in Helsinki and which was attended by participants from 22 countries.¹ To provide background material for the discussions at this meeting, a survey of ground water pollution in Europe and a number of other papers were presented.² The following conclusions were drafted by a small committee of the participants under the guidance of Dr A. Key of the Ministry of Housing and Local Government, London, who later presented them to the full Seminar where they were discussed, amended, and approved.

General problem of pollution

It has been found that ground water is of excellent bacterial quality over large areas and this is one of the reasons why it is so widely used for public water supply purposes. Other reasons are its clarity, its palatability, its freedom from organic matter, its relatively constant temperature, and its reliability summer and winter alike.

Problems of ground water pollution vary according to the type of ground through which the water must pass. Where the ground consists of highly fissured rocks and coarse gravels which are exposed at the surface, water may pass through without appreciable change in composition. Consequently if polluted water is allowed to enter the ground, the water drawn from it is also likely to be polluted. The only way of securing that a source of water in such ground shall be of good quality is to establish a protected area within which discharge of polluting matter is prohibited. Where, as is usually the case, absolute protection cannot be achieved, the water should be given appropriate treatment before being supplied to the public; in all such cases disinfection is desirable.

If the ground is impermeable and provided that the impermeable layer is uninterrupted, extensive enough, and of sufficient thickness, and that any wells through it are properly constructed, nothing deposited on it can endanger the water which may be below. However, such conditions are very rare.

The statements which follow apply to ground which is not highly fissured or formed of coarse gravel and which is permeable to water.

¹ Austria, Belgium, Denmark, Finland, France, Germany (Federal Republic), Greece, Iceland, Ireland, Italy, Luxembourg, Morocco, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Tunisia, Turkey, the United Kingdom of Great Britain and Northern Ireland, and Yugoslavia.

² A selection of these papers has been published in the *Proceedings of the World Health Organization* (1956, Vol. 14, No. 5-6). See also *Chron. Wld Hlth Org.* 1956, 10, 156.

of waste water treatment and they have in numerous cases resulted in a net saving in production costs as well

The kind of treatment that should be provided for industrial wastes injurious to health obviously varies with the nature of the contaminating material and with the method of ultimate disposal. Toxic wastes should be treated so as to conform to the standards set by the competent local authorities or supervisory agencies. Where such standards do not exist their introduction should be considered. Infectious wastes may call for precautionary methods of treatment. With the exception of thermal disinfection as practised in rendering plants for the disposal of animal carcasses disinfection of these wastes is not the general rule and thus may be unsatisfactory in certain circumstances. Further research is needed on the role of certain industrial wastes in the spread of anthrax and tuberculosis and industrialists should be made aware that there is a probable danger in the indiscriminate disposal of such wastes.

Special consideration was given at the Seminar to the disposal of the waste waters of the pulp and paper industry which is of vital importance to the national welfare of Finland, Norway and Sweden. It has been shown that the large amount of organic material going to waste in this industry constitutes a heavy pollutional load on the receiving waters and though not directly injurious from the health point of view this pollution is of considerable concern. It is recognized that owing to differences in the size and location of the mills their working methods and the limitations of existing waste treatment methods and to economic considerations no generally applicable method of solving the waste problem is available to date. Further research on the development of suitable methods is necessary.

In spite of the great efforts made to utilize spent sulfite liquor in other industries the

market requirements for its products are limited and can be satisfied by a small fraction of the entire volume available. Nevertheless utilization of the soluble constituents of the wood processed in the paper and pulp industry merits more study. The most promising method for solving the waste problem in this industry as indicated by current experience appears to be heat recovery by evaporation and burning of the liquors. It is already feasible in areas where fuel is expensive and is likely to become more economical as a result of further development.

Water economy

Sanitary engineering has an important part to play in sanitation in general and in safeguarding surface water and ground water quality in particular. However the interests of sanitary engineering particularly in industrialized countries are not always in line with and are sometimes directly opposed to the interests of those who require more and more water for industry and agriculture. require the use of rivers for navigation, fishing and recreation produce ever increasing quantities of ever more complicated effluents as well as sewage and look to the rivers as a means of disposal or require ground for building towns and factories which would otherwise be available for the collection of ground water. An adequate reconciliation of these conflicting interests and thus the solution of the water problem can be found only by taking into consideration the total water economy of a whole river basin or a whole country. Regional and national authorities should bear this in mind. International collaboration is also essential in some cases.

The principal task of any organization dealing with water economy would be threefold:

(1) to set up a balance between the available resources of water and the existing

pollution occurring in such circumstances. It should be mentioned that the benefits of the purifying capacity and of the presence of oxygen near the surface are forgone if wastes are discharged directly into the ground water by way of sink holes, pits or wells.

There are instances in which organic compounds are incompletely oxidized or are incapable of being oxidized at all biologically. Such compounds (e.g., phenols) could convey objectionable tastes to water, or they could conceivably make it actively toxic. The greatest possible care should be taken to prevent such wastes from being discharged on to the land at all, and particularly into the ground by way of seepage pits.

Pollution may penetrate much further into the ground in certain weather conditions—for example, after a period of drought when the soil cracks. The fact that a ground water is usually unpolluted does not necessarily mean that it will always be unpolluted. In using the purifying capacity of the ground it is essential to allow a very considerable factor of safety.

Some polluting substances are not removed in the ground at all. Of these, salts such as chlorides have given the most trouble. The quantities of chlorides discharged into the ground should be so regulated that, after dilution and by the time a source of supply is reached, their concentration will not make the water non-potable or unfit for any other essential use.

The practice of artificially increasing the quantity of ground water is growing and has much to recommend it. In some countries it is indeed believed to be essential. It is usual to set aside areas of suitable land on to which river water, for example, is led and allowed to percolate away. The practice raises its own pollution problem unless, as is sometimes the case, the recharge water is itself of potable quality. The chief trouble arises from the presence of suspended matter which tends to clog the surface and the

difficulty of securing that the oxygen necessary to deal with the organic matter is provided at the place where it can do its proper work. Various means are available to overcome these difficulties, and those suitable to the circumstances should be adopted. Other wise, replenishment schemes may come to a premature end, or the ground water may need treatment after abstraction.

Industrial effluents

The danger of pollution of underground water by industrial effluents calls for a more careful study of the problem of industrial waste disposal and this was given due consideration at the Seminar.

The use of diffusion wells or seepage pits for waste disposal though practised to some extent in certain industries should be looked upon as reasonably safe only in those cases where the receiving aquifer is unfit for other use and there is no possibility of waste finding its way into other water-bearing strata. It should be remembered that wastes disposed of in this way are beyond the control of man and that once damage has been done the possibilities of remedy are very remote.

It has been suggested that, before deciding on other methods of disposal, one should study in each individual case the existing possibilities of simplifying the waste problem by in-plant measures such as (a) the reclamation of utilizable products otherwise lost in the wastes flow, impairing the quality of the effluent; (b) the recirculation of water as practised for example in the pulp and paper industry in beet sugar factories, steel mills etc.; and (c) alterations of the manufacturing process. The last need not necessarily be of a revolutionary nature; they may in some cases involve only minor changes which will prove effective from the point of view of pollution abatement. It is not claimed that by such measures the need for waste water treatment will be eliminated. But if feasible such measures will reduce the cost

**TABLE 1 INFANT MORTALITY FROM
CONGENITAL MALFORMATIONS 1954**

	Number of deaths among 1 is under 1 year of age	Rate per 100 000 live bo
Ireland	406	656
Northern Ireland	175	608
Scotland	519	562
Saaland	107	38
Israel (Jewish population)	229	541
Netherlands	1 151	503
Germany (Federal Republic)	3 639	445
Canada (excluding Yukon and North West Territories)	2 137	491
England and Wales	3 165	470
West Berlin	81	46
Switzerland	372	444
New Zealand (excluding Maoris)	79	432
Austria	436	421
Denmark	315	412
Italy	3 466	40
Finland	200	401
Australia (excluding full blood aborigines)	767	379
United States of America		
All races	15 116	3 6
White	13 607	231
Non white	1 600	765
New York	229	363
Pennsylvania	67	354
Washington	70	345
United States of Africa (European population)	217	314
Ireland	10	231
Portugal	479	17
Japan	3 466	196

1953

Preliminary or approximate figures do not include deaths among babies born alive but dying before registration of their birth (as within a period of 3 days)

deaths per 100 000 live births. The data are for the year 1954 with a few exceptions which are noted.

The wide range of death rates is interesting. The rate in Ireland is more than three times that in Japan. In the USA the rate in white infants is higher than in non white infants. The rate in Northern Ireland is higher than in Scotland and the rate in Scotland is appreciably higher than that in England and Wales. These rates should be interpreted with caution because as the table shows they are based on a very small number of deaths in some countries or areas and the rate in such places might therefore be expected to show fairly large variation from year to year. For France deaths from congenital malformations in infants who though born alive die before their birth is registered are not included in the figures in this table. Since deaths from congenital malformations are concentrated in infancy (indeed about half the deaths occur within the first four weeks of life) it can be appreciated that deaths from congenital defects before birth is registered are not insignificant in number. Another factor to be considered is whether the medical certification of death is comparable in the countries considered so that the likelihood that death due to such causes is recognized and recorded on a certificate is approximately equal in each of the areas shown in the table. While one may suspect that medical certification in this respect is in fact not comparable from one country to another one cannot estimate from national statistics what variation there may be.

It may appear that relatively few out of every 100 000 infants born alive die from congenital defects within the first year of life but it should be remembered that such malformations are the cause of a great many still births. Even in considering the fate of infants born alive malformations are one of the leading causes of death in infancy especially now that many of the other causes such as diarrhoea and pneumonia have been or are being controlled by advances in medicine and public health.

Moreover not a few deaths take place

and foreseeable future requirements for water,

(2) to improve the balance by increasing the available resources and improving their quality by reducing pollution and

(3) to improve the balance by reducing requirements which may also reduce pollution

Some of the methods of increasing water resources which would have to be studied are the use of impounding reservoirs in the upper parts of rivers for direct supply to water users or to balance the flow in the rivers over the different seasons the use of storage reservoirs in the lower parts of rivers for the same purpose or to allow purification to take place, and artificial recharge of ground water, a method which may well have an important future as it offers important advantages over open reservoirs. In many areas water resources would be increased by the establishment of more efficient effluent treatment plants. The water in a polluted stream can hardly be said to be

available for a purpose requiring pure water

Of the ways in which water requirements may be reduced, the one which might best repay examination is the re use of water in industry, either by recirculation through a process or by the successive use of water in different processes. This procedure has already proved practicable in some cases and at the same time it may greatly reduce the amount of polluting matter to be finally discharged.

There has been a more or less natural controversy between the interests of industry and of those concerned with the prevention of water pollution, but it is encouraging to note that in some countries industry is now taking a more positive attitude towards the problem of stream sanitation. The Seminar participants felt that the interests of industry and public health in this respect were not irreconcilable and they therefore suggested that each country should proceed towards the adoption of a national water policy. The Seminar aimed to further this process.

Epidemiological and Statistical Information

MORTALITY FROM CONGENITAL MALFORMATIONS

A report compiled from statistics supplied by a number of WHO Member States provides data on congenital malformations as causes of death¹. The figures are for the most recent years for which statistics are available usually for 1951-54. In the report are tables indicating the number of deaths and the death

rates by year according to sex and certain age groups and the numerical importance of deaths from the principal congenital malformations according to sex and age.

Table I shows the number of infants in certain countries who were born alive but died from congenital malformations in the first year of life and the number of such

TABLE I NATALITY AND GENERAL MORTALITY IN SELECTED COUNTRIES 1936-38 AND 1951-53
Crude rates per 1000 population

Country, territory or city	Natality						General mortality					
	1936-38	1951	1952	1953	1954	1955	1936-38	1951	1952	1953	1954	1955
Union of South Africa	24.7	25.0	5.2	25.7	25.5	25.5	0.7	8.8	8.2	8.9	8.7	8.5
Canada ^a	20.2	27.2	27.9	26.2	25.7	28.3	0.9	0.0	8.7	8.6	8.2	8.1
Chile	22.3	31.3	32.0	34.6	34.3	31.0	23.5	15.2	13.2	12.6	13.1	11.8
Mexico	43.5	41.8	43.8	41.0	40.4		23.8	17.3	15.0	15.6	13.1	
United States of America	17	24.5	24.7	24.7	25.0	24.7	11.1	9.7	0.6	0.6	9.2	0.3
Venezuela	33.1	43.8	43.7	46.1	46.8	47.1	18.0	11.1	10.8	0.0	10.1	10.2
Ceylon	35.9	40.5	39.5	39.4	36.2	37.9	21.5	11.9	12.0	10.3	10.4	11.0
India ^d	33.9	24.9	24.8	25.7	29.4	30.5	22.6	14.4	13.6	15.0	13.2	11.7
Israel	27.4 ^f	32.7	31.6	30.2	27.4	27.3	8.2 ^f	6.4	6.7	6.3	6.4	5.8
Japan	29.3	25.4	23.5	21.5	20.1	19.4	17.4	10.0	8.9	8.9	8.2	7.8
Austria	13.2	14.8	14.8	14.6	14.9	15.5	13.5	12.7	12.0	12.0	12.1	12.1
Belgium	15.4 ^g	16.4	16.7	16.6	18.8	16.8	12.0 ^g	12.6	11.0	12.1	12.4	12.7
Denmark	18.0	17.6	17.8	17.9	17.3	17.3	10.7	8.8	0.0	9.0	9.1	8.8
Finland	20.0	23.0	23.1	1.9	21.4	21.1	13.3	10.0	9.5	0.6	9.1	8.3
France	14.0	10.8	19.3	1.8	18.0	18.	15.3	13.4	12.3	13.0	12.1	12.1
Germany												
Federal Republic		15.8	15	15.5	15.7	15.7		10.5	10.5	11.0	10.4	10.8
West Berlin		9.0	8.3	8.1	8.0	7.8		12.4	13.1	13.0	13.9	13.0
Ireland	18.4	21.2	21.9	21.3	21.1	21.2	14.4	14.3	11.0	11.8	12.1	12.6
Italy	23.0	19.5	18.0	17.8	19.3	11.1	14.0	10.3	10.1	10.0	9.3	0.3
Lebanon	15.1	15.0	15.1	15.0	15.3	16.1	12.0	11.7	1.0	12.5	11.4	11.3
Netherlands	20.2	22.3	22.4	21.8	21.6	21.4	8.7	7.5	7.3	7.7	7.5	7.8
Norway	15.0	18.4	18.8	18.6	18.8	18.7	10.2	8.4	8.5	8.5	8.4	8.3
Portugal	27.1	24.5	24.7	23.4	22.7	23.8	15.8	12.4	11.8	11.3	10.9	11.3
Spain ^h	22.4	20.0	20.7	20.4	19.9	20.4	1.2	11.5	0.6	9.8	9.0	9.3
Sweden	14.5	15.8	15.5	15.4	14.6	14.8	11.8	9.9	9.6	0.7	9.6	9.4
Switzerland	15.3	17.2	17.4	17.0	17.0	17.1	11.4	10.5	0.0	10.2	10.0	10.1
United Kingdom												
England and Wales	14.9	15.5	15.3	15.5	15.2	15.0	1.1	12.5	11.3	11.4	11.3	11.7
Scotland	17.6	17.7	17.7	17.8	18.0	19.0	13.3	12.9	12.0	11.5	12.0	12.0
Northern Ireland	20.1	20.7	20.9	20.9	20.8	20.8	14.4	12.8	10.8	10.7	10.0	11.0
Yugoslavia	27.9	27.0	29.8	25.4	26.4	26.3	15.9	14.2	11.8	12.4	10.8	11.4
Australia	17.3	20.0	23.3	22.9	22.5	22.6	9.5	9.7	0.4	9.1	0.1	8.9
New Zealand	17.3	24.4	24.8	24.1	24.6	24.0	0.2	9.6	9.3	8.8	0.0	8.9

^a European population
^b Excluding the Yukon and Northwest Territories
^c Excluding tribal Indians
^d Registrations
^e Jewish population

^f Former Palestine territory
^g Excluding children born in but adopted before registration
^h Excluding births within three days in Belgium and 24 hours in Spain
ⁱ Excluding full-blood aborigines
^j Excluding Maoris

after the first year of life. The WHO report shows that congenital malformations cause on the average about one sixth of deaths from all causes during the first year of life in the countries studied. The actual proportion differs to a greater or lesser extent from country to country, perhaps not only because of a real difference in the risk of death from this condition and other reasons already mentioned but also possibly because a large number of deaths from causes such as diarrhoea and pneumonia for example reduces the proportion of deaths which are caused by malformations.

The report analyses the kinds of congenital malformations that have led to death. In the countries studied congenital malformations of the circulatory system have in recent years accounted for about one third to one half of the deaths under one year of age from congenital malformations of all kinds. The second most important defect in this period of life is usually spina bifida and meningocele although in some countries malformations of the digestive system rank second. The death rate from malformations of all kinds is usually higher in male infants than in female infants which is true of most diseases and which certainly applies to malformations of

the circulatory and digestive systems. Monstrosity and spina bifida and meningocele are exceptions however.

Congenital malformations have been the subject of much inquiry in recent years. Formerly the subject was viewed perhaps rather pessimistically since not much was known about causation and therefore prevention except that heredity was thought to play a part in certain types of malformation. The discovery that if a mother has German measles in early pregnancy the foetus may be malformed not only showed that some malformations might be prevented through attention to the mother during pregnancy but also stimulated efforts to find if there were other causes which could be controlled. Knowledge has been accumulated which suggests that the risk is greater in babies born of older mothers or of mothers who are poorly nourished or diabetic for example. All of these offer practical suggestions for prevention. However on the whole the causes of congenital malformations are still poorly understood.

This WHO report on congenital malformations as cause of death provides data on another aspect of a subject of which the study may prove rewarding.

GENERAL VITAL STATISTICS

A recent issue of the WHO *Epidemiological and Vital Statistics Report*¹ devoted to general vital statistics gives the natality, general mortality, infant mortality and neonatal mortality rates recorded in a number of countries and territories (or in some cases in large cities) during the years 1951-55. The rates are compared with the corresponding averages for the years 1936-38.

These statistical data not only show the trend of vital statistics over the last five years,

but also give a general idea of the level of health in the countries considered. Indeed mortality rates—and especially rates of infant mortality—to some extent reflect general conditions in a country as regards health and social conditions.

Natality

During the period 1951-55 there was a slight overall decrease in natality (see Table I) although in most cases the rates were still distinctly higher than in 1936-38. Generally speaking the rates for 1955 differ little from those for 1954 and a tendency to

¹ *Epidemiol. vital. Stat. t. Rep.* 1956, 9, 457-508. This issue also contains statistical tables showing the sex and age distribution of morbidity and mortality due to poliomyelitis during the last few years.

As regards natality the countries in question may be roughly divided into three groups

(1) Countries with a *high natality* where the rate is above 30 per 1000 population. It will be noted that there is no European country in this group which is headed by Venezuela with a rate of 47.1 in 1955 (as against 33.1 in 1936-38) followed by Mexico with 46.4 in 1954 (as compared to 43.5 in 1936-38). Ceylon with 37.9 in 1955 (35.9 in 1936-38). Chile with 35.0 (32.3 in 1936-38) and India with 30.5 (33.9 in 1936-38).

(2) Countries with a *medium natality* where the rate is between 20 and 30 per 1000 population. This group includes several European countries—Spain, Finland, Ireland, Northern Ireland, the Netherlands, Portugal and Yugoslavia—and all the extra European countries except Japan.

(3) Countries with a *low natality* where the rate is below 20 per 1000 population. This group includes Japan where the natality rate is decreasing rapidly and the European countries not mentioned in group 2.

General mortality

An examination of the general mortality rate (see Table I) clearly shows that in spite of a few variations from year to year the tendency to a decrease in general mortality has continued in most of the countries considered. There seems to be a certain stabilization however following the large decrease in mortality recorded after the war which was connected in particular with the introduction of antibiotics.

A comparison of the rates for 1955 with those for 1954 in the 45 countries and terri-

tones considered shows that mortality has increased in 18 of them, has slightly decreased in 22 and has remained stationary in 5.

Infant mortality

As regards infant mortality which is the most sensitive index for measuring the degree of health and social protection in a community, Table II shows an appreciable decrease in rates for the years 1951-55 as compared with 1936-38 in nearly all the countries considered. The year 1955 marks a new record. As in the preceding years, Sweden leads but with a rate of 17 per 1000 live born which is the lowest ever recorded in the whole world. It is followed by New Zealand and the Netherlands with a rate of 20 and Australia with 22.

In some countries on the other hand—among which are Chile, Ceylon, Mexico, Portugal and Yugoslavia—infant mortality is still quite high although it has greatly decreased since 1936-38.

* * *

To sum up, as the random fluctuations in the rates for the period 1951-55 were relatively slight, the simultaneous decrease in general mortality and infant mortality is a significant indication of the gradual improvement in health conditions in most countries. The demographic balance which was largely adverse during the Second World War improved remarkably during the period under consideration. Nevertheless the wide differences which still exist between the rates in different countries—in particular with regard to the infant mortality rates—suggest that further progress can be made in the years to come.

stabilization of the natality level can be observed. Of the 45 countries and territories for which data are given in the *Report*, 22 show a decrease in the natality rate between 1954 and 1955, 17 show an increase, and for six the rate was stationary.

TABLE II INFANT MORTALITY IN SELECTED COUNTRIES 1936-38 AND 1951-55
Deaths of infants under one year per 1000 live born of the corresponding period

Country	1936-38	1951	1952	1953	1954	1955
Canada ^a	68	38	38	35	32	
Chile	243	149	134	114	124	
Mexico	130	99	90	94	80	
United States of America	54	28	28	28	27	27
Ceylon	161	82	78	71	72	
Israel ^b	62 ^c	39	39	36	34	32
Austria	88	61	52	50	48	45
Belgium	63	50	45	42	49	49
Denmark	64	29	29	27	27	25
Finland	67	35	32	34	31	30
France	71	51	45	42	41	39
Germany						
Federal Republic		53	48	46	43	42
West Berlin		49	49	56	51	46
Ireland	71	43	41	39	38	37
Italy	106	67	63	58	53	49
Luxembourg	73	42	42	42	44	39
Netherlands	38	25	22	22	21	20
Portugal	143	89	94	96	86	91
Spain ^d	119	63	55	53	48	50
Sweden	44	22	20	19	18	17
Switzerland	45	30	29	30	27	26
United Kingdom						
England and Wales	56	30	28	27	25	25
Scotland	77	37	35	31	31	30
Northern Ireland	76	41	39	39	33	32
Yugoslavia	139	140	105	116	102	
Australia ^e	39	25	24	23	22	22
New Zealand ^f	33	23	22	20	20	20

^a Excluding the Yukon and Northwest Territories

^b Jewish population

^c Former Palestine territory

^d Excluding children born alive but dead before registration of their birth i.e. within 24 hours

^e Excluding full blood aboriginals

^f Excluding Maoris

in the WHO *Technical Report Series*¹ The report is in effect an extension of the monograph prepared by Dr J. M. Barnes—a special consultant appointed by WHO in 1952 to study the whole question of the toxicity of pesticides.² In the group's report the situation is reviewed in the light of present knowledge certain recommendations concerning the safe use of pesticides are made and some lines for future research are suggested.

The group in introducing its report mentions one particular field in which it felt that it should make certain specific proposals.

The urgency of the race between the use of insecticides in public health and the evolution of resistant strains of insects has been emphasized in the statements of the Director-General to the Ninth World Health Assembly in 1956. In particular those responsible for malaria-control work may find it necessary in the near future to use new types of insecticides which bring in their train new potential hazards to those applying them. The Group therefore considered in some detail the recommendations that might be made to enable more toxic insecticides of all kinds to be used safely in public health work.

The group then proceeds to define the term "pesticides".

In the Group's work the term pesticides has been limited to include only insecticides, fungicides, molluscicide and herbicides, with passing reference to rodenticides. Poisons and operations designed to kill other pests e.g. wild animals, have not been considered.

The report proper begins with a discussion of the toxic properties of pesticides. It is pointed out that while it is essential to have some knowledge of the toxicity of a compound before using it in the field toxicity itself is not necessarily a measure of the health hazard involved being the ability of a material to cause harm rather than the probability that it will do so. For this reason the importance of carrying out field investigations—measurement of pesticide

concentrations in air under operational conditions estimation of skin contamination of operators testing of protective clothing clinical examination of workers—as well as laboratory tests of toxicity is stressed.

A review of the incidence and nature of poisoning follows. Here the clinical signs of poisoning are described and laboratory methods for detecting the presence of pesticides in body tissues and fluids are discussed. This section ends with some suggestions for future studies and a recommendation that WHO should continue to prepare and distribute bibliographies on the toxicology of pesticides.

Turning then to the more immediate and practical problem of the measures to be taken to protect pesticide operators the report emphasizes the importance of distributing information on hazards to all workers handling pesticides and describes in detail both the general precautions to be observed by all spray operators and the special precautions necessary when dealing with the more toxic materials such as dieldrin and the organophosphorus compounds and when carrying out aerial spraying operations.

The report goes on to deal at some length with the question of the contamination of food and water with pesticides the introductory paragraphs to this section explaining clearly the scope of the discussion.

The Group confined its discussions to those situations where it was felt that a real hazard might arise from the deliberate or accidental addition of pesticides to drinking water or food supplies. No attempt was made to assess the hypothetical hazards that might arise from the presence in food of residues of pesticides that would result in a daily intake by men of amounts far below the amount believed capable of causing obvious signs of intoxication. The possibility that a syndrome of long term intoxication may be recognized was considered, but it was agreed that primarily the Group should confine its attention to those situations in which an obvious hazard of poisoning might arise.

The Group considers that whenever treatment of a foodstuff with a pesticide is essential from the economic or public health point of view such treatment should, because of the possibility of endangering the health of consumers be carried out with the minimum dose necessary to obtain the desired effect.

¹ WHO *Health Org. J.* 1956, 61, 5. 1956, 61, 5. 31 pages. Price 3s. 6d. Sw. f. 2.— Published in English, French, and Spanish.

² Barnes, J. M. (1953) *Technical Report Series* No. 16.

Reports of Expert Groups

INSECTICIDES AND EQUIPMENT FOR THEIR APPLICATION

In the numerous campaigns undertaken throughout the world against insect borne diseases various types of spraying and dusting apparatus have been used on an ever wider scale in recent years. It is anticipated that their use will continue to increase and the success of future campaigns will depend in a large measure on the quality, durability and efficiency of such equipment. It is for this reason that the WHO Expert Committee on Insecticides has thoroughly reviewed in the light of field experience the specifications which it established in 1950 and 1951 for three types of apparatus: compression sprayers, stirrup pump type sprayers and hand carried, hand actuated plunger type dusters. The revised specifications are contained in the sixth report of the Committee.¹

Since insecticide equipment is destined to be used intensively and sometimes under very difficult conditions it is important that it always be maintained in perfect working order. The report gives full details regarding maintenance and repair of sprayers and dusters and includes a list of spare parts which should be supplied with them. It also

includes information on the characteristics and efficiency of fogging and misting machines and suggestions for their use.

The utilization of highly toxic insecticides tends to increase the risks to which persons handling or applying such products are exposed and an important section of the report is devoted to this subject. It indicates the rules to be followed and the protective measures to be taken such as the wearing of special clothing and the use of special devices by persons engaged in spraying operations or in preparing insecticide solutions and suspensions.

The report describes the impregnation of clothing and bedding with insecticides a method which could probably be applied also in treating the tents of nomadic peoples in malarial regions.

Other subjects covered by the report are standardization of equipment improvements which could be introduced to meet local requirements, equipment for the application of molluscicides in bilharziasis control programmes and equipment for the disinsectization of aircraft. Finally there are recommendations for research on a number of problems.

Wld Hlth Org Techn R p Ser 1956 110 84 pages Price 3/6 \$0.60 or Sw fr 2.— Published in English, French, and Spanish

TOXIC HAZARDS OF PESTICIDES TO MAN

In June 1956 WHO convened a study group on the toxic hazards of pesticides to man—a problem which with the widespread and ever growing use of these substances to control vectors of disease and to safeguard crops, has assumed increasing importance in recent years and has become a matter of con-

siderable concern to health authorities in many parts of the world. The report of this group which was composed of experts with specialized knowledge of the toxicity of pesticides on the one hand and of their practical use in agriculture and public health work on the other has just been published.

Courses for Sanitation Personnel

Paraguay

Paraguay's first course for sanitary inspectors opened in Asuncion on 1 June 1956 and will last until the end of the year. The Pan American Sanitary Bureau (WHO Regional Office for the Americas) and the Servicio Cooperativo Interamericano de Salud Publica (SCISP) co-operated with Paraguay's Ministry of Health and Social Welfare in setting this course afoot.

The 22 students attending the course have had four months of formal training in Asuncion after which comes three months field training at the San Lorenzo health unit. On successful termination of the course which is more advanced than that previously given for guardas sanitarios the students will be appointed to health units operated by the Government with PASB/WHO and SCISP assistance. A special feature in the selection of entrants was that candidates had to be fluent in the Guaraní language so as to be able to speak freely with the rural population in addition to meeting the normal general and technical admission requirements.

Dominican Republic

The second course for sanitation officers held in the Dominican Republic's National Laboratory of Public Health started on 4 June 1956 and will also go on to the end of the year. International consultants provided by PASB/WHO helped the Secretary of State in drawing up the programme. The course is to train students to the number of 30 who will afterwards staff the Ciudad Trujillo health unit, serve to extend the work of the San Cristobal health unit to cover neighbouring rural areas or to develop services in Santiago de los Caballeros.

Seminar on smallpox eradication

The Pan American Sanitary Bureau which serves as the WHO Regional Office for the Americas is working towards elimination of smallpox from the territory it covers. The final aim is to have the entire population pro-

tected against the disease by vaccination and initial efforts have gone towards getting into production a vaccine of high quality capable of standing up to adverse conditions of climate and to transportation.

With this end in view the Organization has been giving technical assistance to national laboratories in the Region in the form of equipment, expert advice, fellowships for national technicians, technical information and facilities for testing vaccines for potency and innocuity. Specialists to help in organizing and executing vaccination campaigns have been made available to some countries as well.

The stage was reached earlier this year however where it was thought that a meeting of the national professional staff responsible for vaccine production and control was likely to be of value by providing an opportunity for exchange of information and experience. The PASB accordingly arranged for a seminar to be held in Lima, Peru from 19 to 25 August 1956.

The main topics laid down for discussion were (1) production of glycerinated calf vaccine (2) production of chick embryo vaccine (3) production of dried vaccine (4) potency and innocuity tests (5) experience with chick and dried vaccines in mass vaccination and (6) laboratory methods for the diagnosis of smallpox.

Round table discussion was selected as the most appropriate method of working towards the desired results, namely virtual standardization of techniques used within the Region for the production and control of vaccine, increased knowledge of laboratory methods for diagnosing smallpox and an evaluation of the results obtained from the various types of vaccine in use. Practical demonstrations were also arranged by some of the special consultants present.

Nursing Seminar in South East Asia

A South East Asia Regional nursing seminar sponsored by the World Health Organization was held in New Delhi in August of this year. During the three week

The Group feels that special attention should be paid to the possible contamination of basic foodstuffs which are continually consumed e.g. milk flour and products derived therefrom (bread macaroni spaghetti etc.) meat fats water etc

In connexion with the application of pesticides for vector control, the problem arises of the possible deleterious effects of these substances on the health of livestock. This problem is considered briefly in the next section of the report the group's observations being limited, however to the effects on domestic animals and fish of certain pesticides used for malaria onchocerciasis and bilharzias control—only a relatively small aspect of the general problem of the toxicity of pesticides to livestock

The final section of the report is devoted to a discussion of regulations for the prevention of hazards during the manufacture handling, and application of pesticides and for the control of pesticide residues in food. The group's opinion on the question of

residues in food supplies is summed up in the closing paragraph

The Group is unable to consider setting up safe limits for pesticides in food nor does it feel able to recommend that WHO should undertake such a task. However the Organization might with the assistance of its expert panels and committees advise countries on what it thought might be dangerous or undesirably high levels in particular circumstances

There are three annexes to the report the first presents the results of a questionnaire which was sent to several laboratories carrying out research on the vertebrate toxicology of pesticides to find out the number and type of staff engaged on such work and the kinds of investigation pursued. The second reviews briefly some studies made to determine the degree of exposure of workers to insecticides, and the last gives recommendations for the design and use of respirators and dust masks for protection against pesticides

Notes and News

Regional Training Course for Waterworks Operators

From 1 to 30 September 1956 the School of Sanitary Engineering of Mexico's Universidad Autonoma held a short training course for staff engaged in waterworks operation. This was the third course of the kind that has been organized in the WHO American Region with the help of the Organization and Mexico was providing the facilities for the first time following the recent conclusion of an agreement for WHO to give the School of Sanitary Engineering technical assistance.

The course was attended by selected staff from Cuba, Haiti, the Dominican Republic, and Mexico, all of whom received fellowships for the purpose. Two engineering consultants, also provided by WHO helped to

organize and run the course. The aim was to give the fellows a sound technical training comprising theoretical instruction laboratory work and field visits (in Mexico) and covering all important aspects of the running of the various types of water supply system (filtration plants pumps chlorination fluoridation etc.)

A further one month's special course was arranged for the best eight fellows attending the earlier course to fit them for work as instructors or supervisors in the training of local staff.

The engineering consultants will be available during the month of November for visiting upon request of the governments the countries from which the fellows were drawn for the purpose of giving further practical instruction on the spot.

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The Seminar took the view that development of team work is essential to the building up of health services in the Region and that more attention should be given to planned programmes in hospitals and other community services designed to achieve this objective. The ward sister occupies a key position in this respect—as leader of the ward nursing team nursing instructor and member of the wider health team. Hence, she must be persuaded of the value of team work and be trained to assume her leadership role. To this end the Seminar recommended that instruction in the principles of supervision and team work be included in the basic nursing curriculum and further that the ward sister's available time for nursing duties proper be increased by allocating certain functions now generally assigned to her to non nursing personnel. Another useful measure advocated is adequate representation of nurses on selection boards for the appointment of ward sisters.

As regards the training of auxiliary staff the Seminar was generally agreed that institutions should provide appropriate pre service and in service training courses this would at the same time serve to relieve busy ward sisters of some of the responsibility for this work.

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personnel for routine and less skilled aspects of nursing the Seminar recognized that health services must continue to utilize such staff. It nevertheless expressed anxiety over the increasing number and variety in use in the Region and suggested that a single category might be created, with the designation of auxiliary nurse midwife. The functions of the auxiliary nurse midwife were visualized as those of a health teacher midwife and nursing assistant working under the direct supervision of a professional nurse and as a permanent member of the nursing team. A study to determine what specific functions might safely be entrusted to her and the type of organization that would be needed might usefully be carried out.

The Seminar agreed too that public health should be made an integral part of nursing training and that all schools of nursing should strengthen themselves in this respect. The objectives should be to develop on the part of the nurse an awareness and understanding of the socio economic background of the patient as affecting his health and the training of the kind of nurse capable of fulfilling her essential function and at the same time of taking an active part in bettering public health in her country.

In inaugurating the meeting Rajkumar Amrit Kaur India's Health Minister characterized nursing as one of the oldest of all humanitarian services she saw it as pre eminently a vocation. The twentieth century's rapid strides in medical science and acceptance of the right of the common man to good health had she said restored to nursing its full scope—conservation of both mind and body as well as care of the sick. While the widening of the nursing sphere had been definitely related to progress in medicine and public health yet it was the nurse the midwife and the health visitor who determined the extent to which the benefits of medical science reached out into the homes of the people. Nursing she concluded was therefore essential to the vitalization of the health programme, more especially in rural areas and that was at one and the same time a tribute and a challenge to nurses.

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The Committee lamented the sudden death of Dr E. M. Lounie, its secretary since 1952.

The following members attended this meeting: Dr M. L. Ahuja (India); Dr A. do Amaral (Brazil); Vice-Chairman, Dr E. Grasset (Switzerland); Dr J. H. Humphrey (United Kingdom of Great Britain and Northern Ireland); Dr M. Kitaoka (Japan); Dr O. Maalo (Denmark); Chairman, Dr A. A. Miles (United Kingdom of Great Britain and Northern Ireland); and Dr G. Penso (Italy). Dr R. Murray, Director of the Division of Biological Standards of the National Institutes of Health, Bethesda, Md., USA, acted as temporary adviser for this session.

meeting thirty three nursing leaders from Burma Ceylon India, Indonesia and Thailand discussed the nursing problems common to the countries of the Region, within the wider context of public health services in general. The major aspects selected for study were (a) selection and preparation of ward sisters, with special emphasis on in service education, (b) the role of the ward sister in the development of team work in hospital nursing services (c) categories and functions of the auxiliary and (d) integration of public health aspects of nursing into the basic nursing curriculum. The Seminar's conclusions are expected to be of value to the governments and the Organization in drawing up future programmes for improving nursing care and services in this part of the world.

The Seminar took the view that development of team work is essential to the building up of health services in the Region and that more attention should be given to planned programmes in hospitals and other community services designed to achieve this objective. The ward sister occupies a key position in this respect—as leader of the ward nursing team nursing instructor and member of the wider health team. Hence she must be persuaded of the value of team work and be trained to assume her leadership role. To this end, the Seminar recommended that instruction in the principles of supervision and team work be included in the basic nursing curriculum and further that the ward sister's available time for nursing duties proper be increased by allocating certain functions now generally assigned to her to non nursing personnel. Another useful measure advocated is adequate representation of nurses on selection boards for the appointment of ward sisters.

As regards the training of auxiliary staff the Seminar was generally agreed that institutions should provide appropriate pre service and in service training courses this would at the same time serve to relieve busy ward sisters of some of the responsibility for this work.

On the use of less intensively prepared

personnel for routine and less skilled aspects of nursing the Seminar recognized that health services must continue to utilize such staff. It nevertheless expressed anxiety over the increasing number and variety in use in the Region and suggested that a single category might be created with the designation of auxiliary nurse midwife. The functions of the auxiliary nurse midwife were visualized as those of a health teacher midwife and nursing assistant working under the direct supervision of a professional nurse and as a permanent member of the nursing team. A study to determine what specific functions might safely be entrusted to her and the type of organization that would be needed might usefully be carried out.

The Seminar agreed too that public health should be made an integral part of nursing training and that all schools of nursing should strengthen themselves in this respect. The objectives should be to develop on the part of the nurse an awareness and understanding of the socio economic background of the patient as affecting his health and the training of the kind of nurse capable of fulfilling her essential function and at the same time of taking an active part in bettering public health in her country.

In inaugurating the meeting Rajkumari Amrit Kaur India's Health Minister characterized nursing as one of the oldest of all humanitarian services she saw it as pre eminently a vocation. The twentieth century's rapid strides in medical science and acceptance of the right of the common man to good health had she said restored to nursing its full scope—conservation of both mind and body as well as care of the sick. While the widening of the nursing sphere had been definitely related to progress in medicine and public health yet it was the nurse the midwife and the health visitor who determined the extent to which the benefits of medical science reached out into the homes of the people. Nursing she concluded was therefore essential to the vitalization of the health programme more especially in rural areas and that was at one and the same time a tribute and a challenge to nurses.

been covered. In addition to their survey work these teams carry out examinations and BCG vaccination.

Introduction in the Region of the new treatment methods for leprosy has made it possible to dispense with the segregation of sufferers and to provide treatment in fixed centres for patients living at home. Active control work is in progress in French Equatorial Africa, French West Africa, Gambia, Gold Coast, Nigeria, Sierra Leone and Uganda.

As regards yaws five countries of West Africa—French West Africa, French Togoland, Gold Coast, Liberia and Sierra Leone—have decided following a meeting held last August under WHO auspices in Accra, Gold Coast, to pool their resources in an attempt to wipe out yaws totally from that part of the Continent. Mass campaigns are expected to be in full swing by 1957, the initial aim being to survey a total population of over 11 millions. This will be a great step forward towards effective control of the disease if not ultimate eradication. In addition to the considerable sums to be expended by governments on these operations, UNICEF is expected to give financial help estimated at some \$600 000. Similar work goes ahead in other parts of the Region. Mobile units at work for some time now in Nigeria aim to examine two million persons before the end of this year. So far they have found and put under supervision and treatment some 150 000 active, 300 000 latent and 300 000 suspected cases. After treatment the ratio of active cases to total numbers examined has dropped from between 60/80% to less than 1/.

WHO, although excluding for the time being the African Region south of the Sahara from its world wide malaria eradication plans, is nevertheless encouraging governments to go swiftly ahead with their control programmes before the resistance of mosquito carriers to insecticides can develop. One instance of such resistance made its appearance last year in Nigeria and WHO has put an adviser and special research team at the disposal of the governmental author-

ties for further research on the vector in question. General research into the reaction of the anopheles mosquito to insecticides together with evaluation of the latter's effectiveness is being intensified too. The main theatres of WHO-aided operations against malaria are presently located in Kenya, Tanganyika, Liberia and Nigeria but the Organization is also giving technical assistance to major campaigns on a territorial scale such as the one undertaken by the French Government in the Cameroons. Interruption of malaria transmission has already been noted or is on the point of being achieved in Swaziland, Southern Rhodesia and Madagascar. On the education and training side plans have been made to add instruction on the prophylaxis and epidemiology of onchocerciasis to malaria courses in 1957. A special course on the pathological, clinical and therapeutical aspects of this same disease is also planned for 1958.

During the period under review too the rural maternal and child health and environmental sanitation programmes were considerably expanded in line with agreed policies. Work on these two important aspects of public health will go on in the future side by side with the other major activities.

The funds and supplies to carry out all these operations for bettering the health of the African peoples come from a number of sources in addition to the national health budgets. The main international ones are the WHO regular budget, the United Nations Technical Assistance Programme and the United Nations Children's Fund. For 1956 alone international contributions will come to more than £4 million. In the period 1952 to 1956 the total exceeded £11 million.

The technical discussions this year—on practical public health measures for control of tuberculosis in Africa—brought out the alarming increase in tuberculosis incidence throughout the Continent, the main cause of which is beyond doubt the profound change in economic and social conditions which is so deeply affecting parts of it. The remedy foreseen in order to redress the situation comprises mass BCG vaccination early

Regional Committee for Africa

The sixth session of the Regional Committee for Africa was held in Luanda, Angola from 24 to 29 September 1956 following an invitation from the Portuguese Government. Dr Jorge Janz (Portugal) and Dr J J Du Pre LeRoux (Union of South Africa) were appointed Chairman and Vice Chairman respectively. Among those attending were delegates and representatives of the following countries: Belgium, France, Liberia, Portugal, Union of South Africa, United Kingdom, Gold Coast, Federation of Nigeria, Federation of Rhodesia and Nyasaland, and Sierra Leone, as well as a UNICEF representative and a few representatives of intergovernmental and non-governmental organizations.

In common with the other Regional Committees, the Committee for Africa was called upon chiefly to consider the annual report of the Regional Director on WHO's work in the Region during the past year and the programmes and budgets for the years 1957 and 1958. Subjects of outstanding interest that came up for discussion in connexion with the programmes included the development of mass campaigns (often on a continental scale) against the major endemic communicable diseases of leprosy, yaws and tuberculosis, and intensification of malaria control work, preparation of the Regional countries' reports as part of the world health situation survey, and the importance of giving priority to public health work in the planning of national development programmes. In connexion with organizational studies on programme planning, the Committee dealt chiefly with the question of regionalization and decided to take up the matter more fully in 1958 when the views and suggestions of governments are expected to be available, with the object of drafting a report. The regular technical discussions were devoted to the subject of practical public health measures for tuberculosis control in Africa, in recognition of the need for forceful action against this disease.

The Regional Director's report reviews the period from 1 July 1955 to 30 June 1956. The WHO programmes for this period

comprised a total of 54 projects covering such widely varied activities as assistance to 31 country programmes on major health problems, four inter-country malaria or tuberculosis control projects, the planning of conferences, seminars or courses on malaria, yaws, environmental sanitation, rabies, nutrition and cancer (some in collaboration with other agencies), work on surveys of such problems as insect resistance to insecticides, bilharzia, fluoridation of water, hazards of certain pesticides to man, and local health services and community organization and development and collaboration in research work. In the same period the Regional Office expanded its education and training work by awarding a total of 146 fellowships for study abroad, the majority relating to public health administration and communicable disease control. Twenty-seven countries or territories of the Region benefited from this programme.

In discussion of the Organization's health plans for 1957 and 1958, some interesting facts were brought out. Up till now, WHO's main action in the Region has been directed against the major endemic diseases; this year, for instance, 90% of its regional allocation of funds for field work is being devoted to this end. And the same trend is still strong in the programmes approved for the years 1957 and 1958. Teams have been in the field for several years now working on ambitious projects for the control of yaws, tuberculosis, leprosy and malaria. The full incidence of some of these diseases, particularly tuberculosis, is not yet known, but facts are being assembled on which to base future operations and, despite the obstacles of terrain, climate and nomadic population habits, large numbers of people have already been reached with effective results.

Tuberculosis seems to be a menace in urban centres only; the survey teams which started work in 1955 are expected, however, to extend their operations to a further number of territories in the near future and to establish more exactly its incidence. So far, British Somaliland, the Federation of Nigeria, Bechuanaland and Mauritius have already

advisory experts at the national or state level as appropriate for meeting the fundamental problems arising out of this lacuna. The Committee recognized that there was a serious need for greater supervision of public health programmes yet a change of emphasis though possibly desirable and necessary should not be made too precipitately since due account has to be taken of the stage of development in some countries and that will necessitate the continuance of WHO direct aid in field projects for some time to come.

The detailed plan submitted by the Regional Director for a stage by stage programme to wipe out malaria in the Region by 1961 provided the basis for discussion of the problems involved in eradicating this disease. The sources of funds visualized for the carrying out of the plan in addition to the participating governments' own contributions are the United States International Co-operation Administration, WHO's regular budget, the United Nations Technical Assistance programmes, UNICEF and WHO's Malaria Eradication Special Account.

Most of the members while supporting the principles of the programme were apprehensive as to whether the requisite funds would in fact become available. The Committee finally approved the tentative proposals in principle and asked the Regional Director to pursue the matter in negotiation with individual governments. It expressed appreciation too of the United States Government's position in the matter as reported by the ICA representative. According to his statement the United States Government subscribes to the concept of world wide malaria eradication and the ICA will continue to support malaria control and eradication projects. It was further stated that ways and means of mobilizing additional resources for intensifying and expanding such programmes are being sought. Lastly the Committee asked the Regional Director to take up with the Director General of WHO the question of the urgent need for making adequate funds available to him out of the WHO Malaria Eradication Special Account so as to enable the national programmes to go ahead.

Two days of the session were devoted to technical discussions which this year dealt with the problem of how to make school health education programmes in South East Asia more effective. These discussions are an annual feature of the regional meetings and delegates take part in their individual capacity.

The group formulated a number of recommendations dealing with such questions as personnel to be used in school health education programmes, training facilities, improving school sanitary environment, and co-operation among the government departments concerned and voluntary agencies working in this sphere. The chief points brought out were the following:

— The aim of school health education should be the development of the child—physically, mentally, socially and emotionally.

— The teacher should be regarded as a key figure in school health programmes and steps should be taken to ensure that his social position and emoluments are such as to permit him to practise personally the ideals of healthful living which he is preaching.

— Special courses in health education should be introduced into the curricula of teacher training colleges so that all serving teachers would be qualified to give instruction in the subject.

— Curricula for health education as an essential part of general education should be drawn up in the context of local conditions, needs and population attitudes in co-operation with the various agencies concerned and the people themselves.

— The active participation of the relevant government departments—education, health and so on—should be sought in the planning and execution of school health programmes.

— Minimum standards should be laid down and maintained in respect of sanitary arrangements in schools.

The Committee adopted a number of resolutions in support of such inter-country projects as a symposium on resistance of insects to insecticides, expansion of tuberculosis domiciliary chemotherapy, an inter regional

treatment of contagious cases and segregation of positive incurables. These measures set an important problem of accommodation for the health authorities, that time alone can solve. Their efforts meantime are being directed primarily to developing technical facilities for speedy diagnosis and to increasing available accommodation in specialized wards. All over Africa centres are being established for giving early treatment to active cases. The social aspects of the problem were given due attention too and the participants agreed that tuberculosis control calls for improvement in the living standards of the population by fighting such evils as malnutrition, overcrowding and alcoholism.

The Regional Committee will hold its seventh session at its headquarters in Brazzaville from 16 to 21 September 1957. The 1958 session will take place in Monrovia at the invitation of the Liberian Government. The subject of the 1957 technical discussions is to be 'The role of rural health centres in the control of endemic diseases in the African Region'.

Regional Committee for South East Asia

The ninth session of the Regional Committee for South East Asia was held at the Regional Office in New Delhi from 24 to 29 September 1956 under the chairmanship of Dr Svasti Daengsvang of Thailand. Dr Raghunath Baidya of Nepal was Vice-Chairman. The following Member States were represented: Afghanistan, Burma, Ceylon, India, Indonesia, Nepal, Thailand, Portugal and the United Kingdom of Great Britain and Northern Ireland. The United Nations, its Children's Fund and Technical Assistance Board, the ILO, FAO, UNESCO and 12 non-governmental organizations were also represented. The International Cooperation Administration (United States), the Rockefeller Foundation and the Ford Foundation sent observers.

During its six day session the Committee endorsed the regional programme and budget estimates for 1958, approved the annual

report of the Regional Director and accepted in principle detailed plans for an integrated malaria eradication programme for the Region as a whole. The subject of how to make school health education programmes in the Region more effective was dealt with in separate technical discussions.

The draft programme and budget for 1958 was accepted after detailed scrutiny. A procedural innovation this year was the setting up of a programme sub-committee to scrutinize the proposals and determine whether they were balanced and in keeping with the broad policy lines laid down by the Committee and the parent body, the World Health Assembly, and whether agreed priorities were in need of change. Certain sample projects selected at random were subjected to a detailed analysis. Subsequent discussion in plenary session was based on the sub-committee's report.

The regional programme and budget estimates which will now be sent to the Director General of WHO for presentation to the World Health Assembly, provide for an expenditure of approximately \$6.9 million. Of this total an amount of \$1.26 million is proposed as WHO's contribution from its regular budget and the rest is expected to be made available out of UNICEF and United Nations Technical Assistance funds.

The programme makes provision for more than 180 specific health projects in such varied spheres as control of communicable diseases, maternal and child health education and training of medical personnel, health education of the public and environmental sanitation. It also includes 14 inter-country projects pertaining to international seminars, training courses, symposia and conferences on such important subjects as trachoma, leprosy and home treatment of tuberculosis.

The problem caused by the acute shortage of trained personnel at the supervisory level in the expanding public health programmes of Member States in the Region focused attention during discussion of the Regional Director's report. The report suggests that the time has come to start shifting the emphasis from WHO's direct participation in field projects to greater assignment of

campaigns at the regional level and the importance of financial aid on the part of UNICEF so that the job may be finished before the possible development of insect resistance to insecticides makes it infinitely more complicated and costly

During the discussions in the Council the United States representative announced his Government's intention of making a special contribution of one and a half million dollars to be used for the campaign in the Americas during 1957. The Council welcomed this generous offer as an incentive to all the governments of the Region to press on with this work

In its resolution on malaria the Council recommended member governments to give their national malaria services the status and authority necessary for speedy handling of financial and personnel matters as one means of assuring the success of the eradication programme and urged them to change over existing control work to eradication measures furnished with the necessary financial support to carry them through to an end

According to the Director's report a marked change in the public attitude towards leprosy has followed the advent of the modern methods of treatment whereby the disease can be arrested, made non-transmissible and even apparently cured. These new developments have resulted in bringing many previously hidden cases into the open and indications are that estimates of the incidence of the disease in the Region will have to be revised upwards. The report draws attention to the need for up-to-date legislation on leprosy—aimed at prevention of the disease, early and better diagnosis and treatment—as an essential factor in any anti-leprosy campaign. The Council endorsed the Bureau's approach to the problem and recommended that national programmes be revised in line with modern knowledge and practice. The Bureau is asked to continue work on determining the extent of the problem in the Region, to provide facilities for the training of leprosy service personnel and to foster exchange of experience among professional staff

Some representatives in the Council urged that every encouragement be given to expanding and improving training and education programmes notably through the WHO/PASB fellowship grants in order to meet to some extent the existing serious shortage of technical experts in all branches of public health and preventive medicine. The Council again recommended Member States to make it easier for public health staff to take advantage of fellowships by making provision for continuing salaries and emoluments during the period of study abroad. It asked too that the Bureau's fellowship programme be revised with a view to bringing stipends more into line with increasing costs and to creating various grades of fellowships. The new regulations envisaged are to take account of the fellow's professional or academic status, professional experience and period of post graduate study, the duration and type of study to be undertaken, the nature of his work (public health, preventive medicine, administration, hospital or teaching), the number of his dependants and the financial arrangements of his government in respect of civil servants studying abroad.

It was reported to the Council that the Bureau has set up a technical committee of experts for the purpose of drawing up recommendations on sanitation particularly as regards the health of travellers in the Region. The Council is fully aware of the importance of the sanitation problem throughout the area and the need for improving sanitary measures for the protection of the population in general. Pending further action, it directed the Committee to prepare a manual of recommended minimum standards of sanitation for hotels, restaurants and transportation and other tourist and travel facilities.

It was reported that the PASB's emergency revolving fund had met calls for the purpose of advancing supplies to two member countries in distress. In September 1955 a hurricane devastated the island of Grenada, British West Indies, and the timely delivery of anti typhoid vaccine enabled the authorities to vaccinate the whole population and thus avert the risk

conference on trachoma interchange of biological specimens training courses on virus diseases a regional seminar on certification of causes of mortality and morbidity, a combined training course for health physicists and a regional teaching conference on child health

It also confirmed its decision to hold the tenth (1957) session in Rangoon at the invitation of the Government of the Union of Burma, and the eleventh (1958) at the seat of the Regional Office in New Delhi. With regard to the 1959 session the invitation of the Ceylon Government to hold it in Ceylon was accepted. Health education of the public is to be the topic for technical discussion at the tenth session.

Regional Committee for the Americas

The Directing Council of the Pan American Sanitary Organization which serves as the WHO Regional Committee for the Americas held its ninth meeting (eighth session of the Regional Committee) in Antigua, Guatemala from 17 to 27 September 1956. Dr Carlos Soza Barillas of Guatemala was chosen to preside. Two Vice Presidents were appointed as well: Dr Daniel Orellana, of Venezuela, and Dr Felix Hurtado of Cuba. The Council was attended by representatives from 20 American republics and from France, Netherlands and the United Kingdom of Great Britain and Northern Ireland as well as by an observer from Canada.

The Council adopted a budget for the Pan American Sanitary Bureau—which serves as WHO Regional Office for the Americas—for 1957 amounting to \$2.4 million. This is an increase of \$200,000 over the 1956 budget, the extra funds being mainly for the expansion of work on poliomyelitis, the diarrhoeal diseases, yellow fever, and the zoonoses. This budget, together with the regional allocation of \$1,402,970 from WHO and additional funds from the United Nations Technical Assistance Programme, will be applied to some 150 public health programmes which the Bureau is helping the various Member countries to plan and execute. The

United Nations Children's Fund is expected in addition, to make available to the governments concerned substantial contributions of supplies and materials.

The Council also studied plans for the WHO regional programme for the year 1958 which have to be prepared in time for submission to the World Health Assembly in May 1957; it approved a draft programme and budget in the amount of \$1,567,980. The proposal for the Pan American Sanitary Bureau programme for the corresponding period is expected to call for an expenditure of \$3 million.

Since sound public health planning requires that the two programmes should form an integrated whole—despite the different sources of funds—the Council set up a working party early in the session for the purpose of having both programmes and budgets for 1958 scrutinized in detail. The total plans were judged to be well conceived for meeting the recognized needs of governments in the Region and properly balanced among the various activities.

The Director's annual report for 1955 was discussed and approved by the Council. It reviews the 121 public health programmes assisted or operated by the Bureau during that period. Some 45 of these were either inter-country or continental wide operations: malaria eradication accounting for nine of them. Fellowships were awarded to 390 health workers of all grades for study abroad or attendance at seminars and the other activities described cover practically the whole gamut of public health work including notably smallpox eradication, yellow fever studies, environmental sanitation, typhus and leprosy control and maternal and child health.

Work towards eradicating malaria from the Western hemisphere is to be given top priority on the instructions of the Council. The Council reaffirmed its faith that the possibility of ridding the Region of this scourge exists but an essential requisite is continued international collaboration. It especially stressed the Bureau's role in helping to plan and co-ordinate the national

and child care projects under way in most countries of the Region twelve nursing projects are in operation and health education of the public forms an integral part of every WHO aided project

The report gives special attention to the education and training of medical and other health personnel—a basic objective of the Organization. The Region's activities in this domain include the exchange of ideas between scientists undergraduate medical education for countries not yet possessing medical schools of their own and the training of nurses and auxiliary staff

But while the emphasis has been on the building up of public health services medical care has not been neglected and many people particularly in the younger age groups are leading healthier and happier lives as a result of the work of WHO doctors nurses sanitarians physiotherapists and other specialists

The conclusion reached however is that the greatest good resulting from WHO's efforts in the Region is the continuing of the health work started by WHO teams and now being carried on by national staff who have gained a better understanding of the people's health needs and are better equipped to meet them

The Sub-Committee approved the programme and budget estimates for 1958 submitted by the Regional Director which call for an expenditure amounting in all to \$3,407,160. The funds are expected to be made available from the following sources: WHO regular budget \$1,052,061 United Nations Technical Assistance Programme \$948,099 and the remaining \$1,407,000 from the United Nations Children's Fund and other extra budgetary sources. Provision in the amount of \$9600 has been made in this budget for the cost of introducing Arabic as a working language of the Regional Committee in accordance with the decision taken by the Ninth World Health Assembly in May 1956. The programme and budget is being sent to the Director General of WHO for subsequent submission to the Tenth World Health Assembly in 1957

In its discussions the Sub-Committee gave particular attention to the problems of leprosy poliomyelitis malaria eradication and drug addiction in so far as these affected the Region. It noted recent developments in the management of leprosy patients notably the new methods of ambulatory treatment and the modified segregation of infectious cases and invited governments to take active steps to develop anti-leprosy services at the same time WHO is asked to set up training courses for the requisite personnel needed to staff such services

As regards poliomyelitis in the Region the Sub-Committee recognized that further study of the problem was needed. It recommended that in the meantime adult travellers arriving from abroad should be immunized before going into known endemic areas

Despite all previous control efforts malaria still continues to be a major health problem of the Region. The Sub-Committee reaffirmed its belief that malaria eradication represents a capital investment of great value and is the sole recommendable policy in face of the potential danger that the mosquito carriers may develop a resistance to modern insecticides. It accordingly urged Member States to use every means at their disposal in working towards this goal and requested the active help of UNICEF and other organizations in the work. It was also suggested that governments should make suitable administrative and financial arrangements so as to allow the anti-malarial organizations to achieve the maximum efficiency in their work

With regard to drug addiction the Government of Iran was warmly praised for its decision to suppress opium poppy cultivation throughout its territory and all Member States of the Region were asked to co-operate with it in its campaign against addiction

On the invitation of the Government of Iraq it was decided to hold the 1958 session of the Sub-Committee in Baghdad. The 1957 session will take place as previously decided at the Regional Office in Alexandria. The subject of the technical discussions at the 1957 session is to be sanitation in rural areas

of an epidemic outbreak of that disease. In the early part of 1956 Argentina had its worst known outbreak of poliomyelitis and the Bureau had iron lungs flown down to Buenos Aires in March to help in coping with the situation.

Regional Committee for the Eastern Mediterranean, Sub Committee A

Sub Committee A of the Regional Committee for the Eastern Mediterranean met in Teheran from 19 to 25 September 1956 under the chairmanship of Dr Jamshid Amouzegar, Iran's Under Secretary of State for Health. Apart from the normal representation at the session Tunisia was participating for the first time in the Region and the Sudan for the first time as a full Member pursuant to the Ninth World Health Assembly's decision to admit these two new countries to membership of the Organization.

The most important items on the agenda for the session were WHO's regional programme and budget for 1958 and a number of questions relating to such health problems as malaria, poliomyelitis, leprosy and favus. Other matters coming up for discussion included environmental sanitation, maternal and child health, public health statistics, health education of the public and drug addiction, the last named having particular reference to Iran's present campaign against drug addiction following upon its recent legislation to ban the cultivation of the opium poppy throughout its territory.

Valuable technical discussions also took place on the topic of health education of the public. A number of observers from the United Nations and the specialized agencies as well as representatives and health educators from the various countries of the Region participated in the discussions.

The Sub Committee had to consider the nomination of a successor to the present Regional Director when he terminates his service with the Organization. The Sub Committee recommended that Dr A. Taba, who is at present serving as Deputy Regional Director, be nominated and that his appoint-

ment take effect on 1 September 1957 when Dr Shousha retires.

The Sub Committee had before it a report of the Regional Director covering the normal annual review of the Organization's work in the Region for the period August 1955 to July 1956 and surveying as well its activities as a whole for the seven years since the Regional Office was set up. It is interesting to note the extent to which these activities have expanded over the years so that at present more than one hundred health projects throughout the Region are receiving direct aid from WHO. During this period too nearly eight hundred fellowships for study abroad have been granted.

The report goes on to state that the considerable achievements of the past year are not isolated phenomena but evidence of the gradual progress that has been clearly discernible from 1949 onwards. In order to consolidate these gains however governments are urged to take steps to streamline their health administration machinery and to decentralize health services so as to bring the benefits of the revolutionary discoveries that have transformed the approach to public health problems in recent years within the reach of the population as a whole.

According to the report communicable diseases—malaria, tuberculosis, trachoma, bilharziasis and others—constitute the Region's outstanding health problem and WHO is devoting the greater part of its energies and almost half the available budget to action against them. Since 1949 more than 200 fellowships have been granted for advanced studies on communicable diseases.

The stress laid on the improvement of public health services in the same period while less spectacular in effect has been equally important. Public health administration, nursing, maternal and child care, mental health and many other facets of public health come under this heading and the demand on the part of Member States for all forms of WHO assistance designed to contribute to the improvement of public health services is steadily increasing. There are maternal

the Belgian delegation to the session is going forward to the Executive Board for consideration

The rights and obligations of Associate Members again came up for discussion and the Committee recorded its view that Associate Members should be granted full voting rights in regional committees

The 1957 session of the Committee will be held at the new regional headquarters in Copenhagen where the Regional Office will be moving during the first half of 1957 For the 1958 session the Committee accepted an invitation from the Government of the Principality of Monaco

The subject of the technical discussions at this session of the Regional Committee for Europe was "The prevention of accidents in the home" The Committee chose as its topic for discussion at the next regular session "The integration of preventive social and curative medicine into health services"

Regional Committee for the Western Pacific

The Regional Committee for the Western Pacific met in Manila for its seventh session from 7 to 13 September 1956 thirteen Member States of the Region participated as well as representatives from the United Nations Children's Fund the United Nations Technical Assistance Board the South Pacific Commission and other international bodies Dr J Bierdrager (Netherlands) was elected Chairman and Dr Jose de Paiva Martins (Portugal) Vice Chairman The Chairman appointed to conduct the technical discussions was Dr Trinidad Gomez of the Philippines

The Committee reviewed the Regional Director's report on the Organization's work in the Region for the period 1 July 1955 to 30 June 1956 During this period there was a general expansion of WHO's activities in addition to modifications in the programme to meet changed local conditions New work in line with the Organization's latest policy was started—for example pilot projects on ambulatory therapy and chemoprophylaxis in tuberculosis control and on the new

methods of tackling leprosy The results of these trials are awaited with keen anticipation throughout the Region as a preliminary to possible wider application of the new techniques

Work on malaria control made considerable progress during the period helped by UNICEF and the United States International Co-operation Administration Conferences on malaria held at Phnom Penh in January 1956 and at Kuching in February 1956 gave evidence of the earnest desire in the Region to work towards the ultimate objective of complete eradication of the disease An auspicious start to this work was made by the establishment of two bodies for co-ordinating control work among their member countries and on an inter-regional basis as well The support already forthcoming from the Region for the WHO Malaria Eradication Special Fund augurs well for the continuance of the work

As regards yaws in addition to the strengthening of existing projects planning and organizing went ahead with a view to getting control work started by 1957/58 in all the countries of the Region where the disease is endemic Preliminary pilot projects were almost completed in Fiji and Western Samoa and similar campaigns planned with the assistance of WHO were carried out by the national authorities in the British Solomon Islands Protectorate and West New Guinea All this brings appreciably nearer the prospect of complete elimination of the disease from the area

The action in the Region to combat tuberculosis was largely confined during the period under review to BCG vaccination campaigns Programmes are in operation in Cambodia China (Taiwan) Philippines Viet Nam and West New Guinea The BCG assessment team working in the Region issued two reports during the year

Efforts were continued to encourage health administrations to tackle the problem of venereal diseases control projects assisted by WHO are already in operation in a number of countries Interest in such diseases as filariasis the anthropol borne virus diseases

Regional Committee for Europe

The Regional Committee for Europe which met in Geneva from 10 to 13 September 1956 under the chairmanship of Dr A Sauter (Switzerland) was attended by delegates from 21 Member States of which one, Morocco was represented for the first time as a full Member. Seventeen international organizations intergovernmental and non governmental were also represented.

The Committee paid homage to the memory of the late Dr N D Begg Regional Director for Europe from 1951 to 1956 and received a report on activities during the current year from the Acting Director Dr G Montus.

In 1956, work in the control of communicable diseases including trachoma and other eye diseases was pursued in Greece Morocco Spain, Turkey and Yugoslavia. Other fields in which WHO's assistance in Europe was sought under the Technical Assistance Programme included maternal and child health, nursing social and occupational health hospital administration and environmental sanitation. Under the regular budget attention was paid in certain countries to the strengthening of existing facilities for the care of physically handicapped children to various aspects of mental health work and to the training of sanitary engineers.

As in previous years the fellowship programme for advanced study abroad remained an important part of WHO's assistance to individual countries in Europe. During the first half of 1956 more than two hundred WHO fellowships were granted in Europe. Administrative arrangements were made for more fellowships than this however since many fellows come from other regions to study in Europe.

Under the heading of inter-country programmes, three conferences were held: one on the teaching of preventive and social medicine, one on post basic nursing education and one on malaria eradication, the last being arranged jointly with the Eastern Mediterranean Regional Office. During the period under review there were three seminars (on

sanitary engineering virus and rickettsial diseases and child guidance) and the Regional Office organized or contributed to 11 training courses of which four were held at the International Children's Centre in Paris. Co-operation between schools and training centres of public health in Europe was further developed.

Perinatal problems drinking water standards and the prevention of accidents in childhood were the topics which study groups or advisory groups considered in Europe in 1956. The Regional Office also sponsored or contributed to studies on child development alcohol problems sanitary engineering terms and the organization of health services in Europe. Its contribution to meetings organized by the United Nations was largely in the field of mental health.

In the course of its review of 1956 activities the Committee emphasized the value of inter-country programmes. Such programmes represent an important means of developing regional co-operation in public health and the Committee expressed the wish that they should continue to form a substantial part of the European programme.

Proposals made for 1957 and 1958 follow the pattern of previous years, with the difference that provision has been made in the form of a supplemental programme for the return to full participation by States now inactive. The 1958 budget proposals amount to \$12 million under the regular budget (of which about 41% is comprised within the supplemental budget) some \$350,000 under Technical Assistance and \$1.75 million under extra budgetary funds, this being the amount proposed for expenditure by agencies having joint programme arrangements with WHO (i.e. UNICEF in 1958).

One of the tasks facing the Committee at this session was the nomination of a successor to Dr Begg as Regional Director. Such appointments are made by the WHO Executive Board in agreement with the regional committee (under Article 52 of the WHO Constitution). The Committee's choice was made in private session and the name of Dr Paul J J van de Calseyde who headed

the Belgian delegation to the session is going forward to the Executive Board for consideration

The rights and obligations of Associate Members again came up for discussion and the Committee recorded its view that Associate Members should be granted full voting rights in regional committees

The 1957 session of the Committee will be held at the new regional headquarters in Copenhagen where the Regional Office will be moving during the first half of 1957. For the 1958 session the Committee accepted an invitation from the Government of the Principality of Monaco

The subject of the technical discussions at this session of the Regional Committee for Europe was "The prevention of accidents in the home". The Committee chose as its topic for discussion at the next regular session "The integration of preventive social and curative medicine into health services"

Regional Committee for the Western Pacific

The Regional Committee for the Western Pacific met in Manila for its seventh session from 7 to 13 September 1956. Thirteen Member States of the Region participated as well as representatives from the United Nations Children's Fund, the United Nations Technical Assistance Board, the South Pacific Commission and other international bodies. Dr J. Bierdrager (Netherlands) was elected Chairman and Dr Jose de Paiva Martins (Portugal) Vice Chairman. The Chairman appointed to conduct the technical discussions was Dr Trinidad Gómez of the Philippines.

The Committee reviewed the Regional Director's report on the Organization's work in the Region for the period 1 July 1955 to 30 June 1956. During this period there was a general expansion of WHO's activities in addition to modifications in the programme to meet changed local conditions. New work in line with the Organization's latest policy was started—for example pilot projects on ambulatory therapy and chemoprophylaxis in tuberculosis control and on the new

methods of tackling leprosy. The results of these trials are awaited with keen anticipation throughout the Region as a preliminary to possible wider application of the new techniques.

Work on malaria control made considerable progress during the period helped by UNICEF and the United States International Co-operation Administration. Conferences on malaria held at Phnom Penh in January 1956 and at Kuching in February 1956 gave evidence of the earnest desire in the Region to work towards the ultimate objective of complete eradication of the disease. An auspicious start to this work was made by the establishment of two bodies for co-ordinating control work among their member countries and on an inter-regional basis as well. The support already forthcoming from the Region for the WHO Malaria Eradication Special Fund augurs well for the continuance of the work.

As regards yaws in addition to the strengthening of existing projects planning and organizing went ahead with a view to getting control work started by 1957/58 in all the countries of the Region where the disease is endemic. Preliminary pilot projects were almost completed in Fiji and Western Samoa and similar campaigns planned with the assistance of WHO were carried out by the national authorities in the British Solomon Islands Protectorate and West New Guinea. All this brings appreciably nearer the prospect of complete elimination of the disease from the area.

The action in the Region to combat tuberculosis was largely confined during the period under review to BCG vaccination campaigns. Programmes are in operation in Cambodia, China (Taiwan), Philippines, Viet Nam and West New Guinea. The BCG assessment team working in the Region issued two reports during the year.

Efforts were continued to encourage health administrations to tackle the problem of venereal diseases control projects assisted by WHO are already in operation in a number of countries. Interest in such diseases as filariasis, the anthropol-borne virus diseases

Regional Committee for Europe

The Regional Committee for Europe which met in Geneva from 10 to 13 September 1956 under the chairmanship of Dr A Sauter (Switzerland) was attended by delegates from 21 Member States of which one, Morocco was represented for the first time as a full Member. Seventeen international organizations, intergovernmental and non governmental were also represented.

The Committee paid homage to the memory of the late Dr N D Begg Regional Director for Europe from 1951 to 1956 and received a report on activities during the current year from the Acting Director Dr G Montus.

In 1956 work in the control of communicable diseases including trachoma and other eye diseases was pursued in Greece, Morocco, Spain, Turkey and Yugoslavia. Other fields in which WHO's assistance in Europe was sought under the Technical Assistance Programme included maternal and child health, nursing, social and occupational health, hospital administration and environmental sanitation. Under the regular budget attention was paid in certain countries to the strengthening of existing facilities for the care of physically handicapped children to various aspects of mental health work and to the training of sanitary engineers.

As in previous years the fellowship programme for advanced study abroad remained an important part of WHO's assistance to individual countries in Europe. During the first half of 1956 more than two hundred WHO fellowships were granted in Europe. Administrative arrangements were made for more fellowships than this however since many fellows come from other regions to study in Europe.

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sanitary engineering, virus and rickettsial diseases and child guidance) and the Regional Office organized or contributed to 11 training courses of which four were held at the International Children's Centre in Paris. Co operation between schools and training centres of public health in Europe was further developed.

Perinatal problems, drinking water standards, and the prevention of accidents in childhood were the topics which study groups or advisory groups considered in Europe in 1956. The Regional Office also sponsored or contributed to studies on child development, alcohol problems, sanitary engineering terms and the organization of health services in Europe. Its contribution to meetings organized by the United Nations was largely in the field of mental health.

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The Committee expressed its great appreciation and directed that the proposal be transmitted to the Director General for submission to the WHO Executive Board and the Tenth World Health Assembly for final decision.

The Committee will hold its eighth session in Hong Kong in 1957 at the invitation of the United Kingdom authorities. Manila will

be the venue of the 1958 session and an invitation to hold the 1959 meeting in China (Taiwan) has been accepted. Leprosy control is to be the topic for technical discussion in 1957 and methods and approaches for improving vital and health statistics services in rural areas was provisionally chosen as the subject for discussion in 1958.

People and Places

NEW APPOINTMENT FOR DR VICTOR A. SUTTER

The World Health Organization has recently lost the valued services of its Assistant Director-General in charge of Advisory Services, Dr Victor A. Sutter. Dr Sutter has resigned to go back to his own country, the Republic of El Salvador, as Minister of Public Health and Social Assistance, after spending the last six years in various capacities on the WHO Headquarters staff.

Born at San Salvador on 12 June 1903, Dr Sutter studied at the National University of San Salvador and at Johns Hopkins University, Baltimore, United States of America. He subsequently held various posts among them that of medical officer of the Institute of American Affairs—in which capacity he worked for several years in Brazil's health services, director of public health services in El Salvador (1939-1944) and chief medical officer of UNRRA in China.

His first WHO assignment in 1950 was as Director of the Division of Communicable Diseases, a post for which his previous experience, both national and international, fitted him well. He later became Director of the Division of Organization of Public Health Services, before becoming an Assistant Director-General in 1957.

WHO REGIONAL DIRECTOR FOR EUROPE

At its September session the WHO Regional Committee for Europe elected Dr P. J. J. van de Calseyde of Belgium as its nominee for the post of European Regional Director. The post became vacant as a result of the death of Dr Norman D. Berg earlier this year. In accordance with the WHO Constitution, Dr van de Calseyde's name will go forward to the WHO Executive Board in January 1957 for final approval.

Dr van de Calseyde was born in Ghent and completed his studies in that city. In 1930 he became Medical Officer of Health at the Ministry of Postal

Services, joining the national public health services in 1935. Since 1945 he has occupied the post of Director General of Health at the Ministry of Health and Families, Brussels.

Dr van de Calseyde is also a member of the WHO Expert Advisory Panel on Venereal Infections and Treponematoses and has represented Belgium for many years at the World Health Assembly and in various other WHO bodies.

NUTRITION CONSULTANTS

WHO has recently made a number of appointments in various parts of the world for the purpose of furthering work on nutrition problems.

Dr Antonio Muñoz, of Guatemala, a medical nutritionist and Miss Anderson, a South African trained in home economics and having special experience in nutrition, have been assigned to work in Basutoland. Their task is to study the prevalence and geographical distribution of certain diseases and conditions—pellagra, kwashiorkor, anabollaviriosis, scurvy and anaemia—which account for much sickness and which may be preventable by changing dietary habits and to collect socio-anthropological data as a basis for advice on a sound prevention programme. Dr Muñoz has had considerable experience in nutrition and has been associated with several experimental field programmes of the Institute of Nutrition of Central America and Panama, Guatemala.

Dr R. F. A. Dean, Director of the Medical Research Council Infantile Malnutrition Group in Kampala, Uganda, who is a well known worker in child nutrition, is now in Malaya on behalf of WHO, helping to determine how widespread protein malnutrition is in that territory. Recent reports have suggested that this type of malnutrition is common in parts of the country and the Government of Malaya is anxious to know its full extent in order that it may plan effective prevention measures. Dr Dean will advise on the latter too, it is a subject to which he has devoted much study in recent years.

The Ecuadorean Government has also been

and poliomyelitis was further stimulated in the Region. Arrangements were made, for instance for setting up poliomyelitis centres in Singapore and Japan to serve their respective areas and negotiations are in progress with the object of getting a third centre established in the South Pacific area.

There was greater stress during the year on one of WHO's basic programmes—education and training of medical and allied personnel. A total of 126 fellowships was awarded, as compared with 87 in the previous period. 44% of the fellows made their studies within the Region, a rise of 11% over the year before. Five inter-country seminars or meetings of study groups were also held.

WHO also collaborated to good effect in national health programmes in such diversified domains as maternal and child health, school health, nursing, health education of the public, mental health, the strengthening of public health services and environmental sanitation, a number of conferences, seminars and study groups on various topics of general interest were organized as well.

In the course of its discussions on the programme for 1958, the Committee decided to ask that WHO give priority to antimalaria projects and provide funds where necessary, for carrying these out from the WHO Malaria Eradication Special Account. In doing so it stressed the need for strict co-ordination of programmes among adjoining countries whether or not within the same WHO Region. It further asked that the United Nations Technical Assistance Board and Committee be requested to provide funds for the establishment of an inter-regional malaria training course in Indonesia. The training of control personnel at the professional level would, it is felt, greatly facilitate the work towards eradication of the disease in the area. An allied recommendation that was adopted concerns a proposal to hold an inter-regional symposium in 1958 with a view to promoting co-ordination of research work on insect resistance to insecticides.

The Committee further adopted resolutions, *inter alia* noting the action on smallpox taken by certain governments in response to

the recommendations of the inter-regional consultant on this disease endorsing the idea of holding an inter-regional conference on leprosy possibly in 1958 and advocating both short and long term planning in regard to mental health by national health authorities of the Region as well as a number dealing with the 1957 and 1958 programmes and budgets.

The expenditure called for under the WHO regular budget amounts to \$856 522 and \$985 061, for the years 1957 and 1958, respectively. The approved supplemental programmes, estimated to cost \$157 602 for 1957 and \$157 551 for 1958, will be implemented to the extent that inactive Members resume participation in the Organization's work. It is anticipated too that funds and contributions will become available from the United Nations Technical Assistance Programme, the United Nations Children's Fund and certain bilateral agencies in amounts not as yet determined.

The technical discussions held during the meeting were on the subject of the care of the child of from one to six years of age. Representatives from the United Nations specialized agencies and a number of non-governmental organizations took part in addition to country representatives. It was generally recognized that the topic was not exclusively a health matter; many other economic and social factors affected the issue and until these were effectively tackled the health problems involved could not all be solved. There was unanimous agreement that attempts to improve child care within this age group should be through education first of the mother, next of the immediate family circle and subsequently of others intimately associated with the child.

A further matter of interest reported to the Committee was the generous offer of the Philippine Government to provide accommodation in Manila for the Regional Headquarters. Apart from the proffered site which formerly belonged to the University of the Philippines, the Government has also offered a donation of 500 000 pesos (\$250 000) towards the cost of establishing the Office.

WHO has recruited Dr Jean T. Rey of Paris to serve as a Visiting Lecturer of Radiology for a two-year period. Dr Rey has been assigned to the Royal College of Medicine Cambodia, where the Organization is assisting in the development of this institution by providing teaching staff and equipment. He is a graduate of the University of Paris and has been a radiologist at the Municipal Hospital at Granville (Manche). Among his duties will be the establishment of a curriculum, instruction of students, consultation in radiology for the other clinical departments of the Faculty and the training of a Cambodian successor as a permanent replacement.

ORGANIZATION OF PUBLIC HEALTH SERVICES

WHO's work towards the strengthening of national public health services covers a wide range of activities. Among its recent appointments is that of Dr Robert Bridgman, Deputy Director of Health of the *Département de la Seine*, Paris, who has gone to Turkey to act for WHO in advising the Turkish Government on hospital planning. Dr Bridgman has interested himself in this subject for many years and is the author of a monograph published by WHO, *The Rural Hospital*. Upon leaving Turkey he will go on to Burma where the Government is planning to build a large new hospital in Rangoon which, when completed, will probably be the largest in Asia. There too he will advise on such matters as hospital staffing, equipment and regulations.

In another part of the world, South America, Dr Odair Pacheco Pedrosa of Brazil was appointed in July of this year to assist Argentina in its current survey of health services. Dr Pacheco's special domain is hospital administration. He has been granted leave of absence from his posts in São Paulo—Medical Assistant to the Superintendent of Hospitals and Clinics, State of São Paulo—and Professor in the College of Hygiene and Public Health—to undertake this work.

The Governments of the Federation of Malaya and of Singapore have asked for WHO's help in reorganizing the hospital records system with a view to setting up a permanent recording procedure that may serve as a basis for the collection of statistical and health information and provide for continuity in medical care services as well. Dr Murray S. Acker, former Director of the Division of Research and Statistics, Saskatchewan Department of Public Health, Canada, was selected by WHO for this two-year assignment and recently took up his duties.

PUNJAB WEST PAKISTAN

Mr Yung Mao Liu, Vice-Commissioner for the Provincial Department of Reconstruction in Taiwan, China, will be leaving his post shortly to go to Lahore, Pakistan, where he will act for WHO in advising the Pakistani Government on sanitary engineering works. The Government's object is to improve water supplies and sewage disposal facilities throughout the Punjab area of West Pakistan. Mr Liu's duties will also include the organizing of training courses for all types of staff engaged in operating such plants together with advice on the relation of such works to irrigation, flood control, navigation, power and other water development projects in the Punjab. Mr Liu, apart from distinguished academic qualifications, has behind him a long experience in sanitary engineering and public works particularly in the reconstruction and rehabilitation of water supplies.

WESTERN SAMOA

Dr Andres Angara, technical assistant in the Division of Tuberculosis, Philippine Department of Health, has been given leave of absence to take up a short term assignment in Western Samoa on behalf of WHO. He is helping Dr D. D. McCarthy and Dr A. C. Fischer, both of New Zealand, to conduct two refresher courses in preventive medicine and village hygiene for selected assistant medical practitioners from territories of the South Pacific. These assistant medical practitioners are South Sea Islanders who have studied medicine for four years at the Central Medical School in Suva. Dr Angara is deputizing in the meantime for Dr McCarthy who was taken ill shortly after the courses began in May last, and will continue the work jointly on the latter's return.

MALAYA

Dr Alwyn Smith, of England, has recently arrived in Singapore to start his WHO assignment as Lecturer in Public Health at the University of Malaya. Dr Smith, who holds a medical degree and Ph.D. in Medicine of the University of Birmingham, as well as a Diploma in Public Health of the London School of Hygiene, was formerly on the staff of the University of Birmingham as a research fellow in social medicine.

TUBERCULOSIS CENTRE IN IRAN

The appointment of Dr Pierre Chasles, of Paris, to the staff of the Tuberculosis Demonstration and Training Centre in Teheran was announced in September last. Dr Chasles is to act as leader of a

assigned a nutrition consultant in the person of Dr Léon Marie Andre of France who was formerly Chief of Nutrition Services in French Equatorial Africa. Dr André is to advise the Ecuadorian National Institute of Nutrition in further developing its work.

MALARIA FIELD APPOINTMENTS

WHO's recent staff appointments include that of Dr S. Royce Chowdhury of India as senior adviser to a new WHO aided project on malaria control in a developing part of the Blue Nile Province, Sudan. His headquarters will be at Sennar. Dr Chowdhury who is a graduate of the Calcutta Medical College with post graduate training in malariology obtained at the Malaria Institute of India, Delhi, has behind him a lengthy experience of this type of work from 1951 onwards. He was in charge of malaria control work in all coal fields throughout India.

Dr Miltiades Zaphir of Athens has taken up duty in Ethiopia as WHO team leader of a malaria pilot project in the Awash Valley, 100 kms east of Addis Ababa. The team is investigating the technical and other problems likely to confront eventual eradication measures. Dr Zaphir took part in the all out attack on malaria that was conducted in his own country in the immediate post war years.

Another recruit is Dr Hassan Abdel Hadi Mashaal of Egypt who was until recently Senior Medical Officer of UNWRA at Gaza. He has gone to Saudi Arabia to join the WHO malaria team there as junior malariologist.

Dr Tomás J. Carbel of Argentina has been sent to Panama City for work on malaria and *Aedes aegypti* eradication. Dr Carbel who received his training in Argentina and the United States of America served as Director General of Health in the south of Argentina from 1951-1955.

Mexico is at present engaged in an ambitious programme designed to wipe out malaria entirely from the country within the next few years. WHO's latest contribution to this effort is in connexion with project studies on Dieldrin, one of the residual insecticides. Mr T. E. McNeel has been seconded from his duties with the United States Public Health Service to take charge of this research work. Mr McNeel's most recent previous assignment was as Chief Malariologist with the United States International Cooperation Administration in the Philippines.

In the Western Pacific Region, Indonesia has just welcomed the arrival of Dr Fritz Ronnefeldt of Germany who is replacing Dr P. Issaris as WHO malariologist and senior adviser to the malaria control demonstration project now running in Java. Dr Ronnefeldt received his medical training at the

University of Munich and followed it up by specializing in tropical medicine at the University of Hamburg. For the last eight years he has been engaged in anti malaria work in Colombia.

MATERNAL AND CHILD HEALTH APPOINTMENTS

Dr Gerard Glynn of Dublin who is a social paediatrician was appointed in August of this year as team leader of the Maternal and Child Health Demonstration and Training Centre, Teheran, Iran. The Centre is a WHO aided project that has been in operation in the Iranian capital for two years now. Dr Glynn has already had wide international experience—with the former United Nations Relief and Rehabilitation Agency and the International Refugee Organization—in the last named of which he served as Chief Medical Officer of the US Zone of Germany.

Dr Elie Wakil of the Ministry of Public Health of Lebanon joined the WHO staff in the same month as medical adviser to the Government of Jordan. Dr Wakil has taken over the direction of the Maternal and Child Health Demonstration and Training Centre in Amman in succession to Dr J. E. B. McPhail.

A WHO team leader for the new Maternal and Child Health Demonstration Centre which is being organized in Benghazi, Libya, with WHO and UNICEF help took up his duties recently. He is Dr Mohammed Farid Ali, formerly of the Ministry of Public Health of Egypt. Dr Farid was head of the Paediatrics Department of the Government Hospital in Assiut and had previously served in Ministry of Health child welfare centres in various parts of Egypt. Miss Nawazat Hafez, a public health nurse midwife formerly attached to the Maternal and Child Health Centre in Damascus, Syria, has also joined the staff in Benghazi.

Another public health nurse midwife, Miss Josephine Shoushani of Lebanon, has been appointed to the staff of the nursing education project now in operation with WHO help in Libya.

In another part of the world, India, WHO has just assigned Dr Erik A. A. Malm of Finland to be medical adviser to the State of Andhra. Dr Malm who is a paediatrician was on the staff of the Paediatrics Department of the General Hospital in Helsinki prior to taking up this post. His duties will include assisting the Director of the Children's Department of the King George Hospital at Visakhapatnam and the Medical College there in the organization and management of the unit. He will also be engaged in teaching paediatrics to undergraduate and post graduate students with emphasis on the preventive aspects of child care.

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ISLAND OF LEYTE PHILIPPINES

Dr W Frohne of the United States of America who holds B A M A and Ph D Zoology degrees of the University of Michigan has been selected by WHO to continue the research work on the ecology of snails carried out in the Philippines for the past three years by his fellow-countryman Dr N G Hairston. This work forms an important part of the WHO aided bilharziasis pilot control project started in the eastern part of the Island of Leyte in June 1953 and expected to last for six years in all. The main object of the project is to determine the most effective and economical way of controlling bilharziasis in this area and data on the natural history of the snail intermediate hosts are essential. Prior to accepting this assignment Dr Frohne was Chief of Entomology Activities at the Arctic Health Center in Alaska.

HEALTH EDUCATION OF THE PUBLIC IN INDIA

Mr Akbar Moarefi of Iran will be leaving this month for India to take up duty on behalf of WHO in the Singur training centre of the All India Institute of Hygiene and Public Health. His assignment is to assist the Government of India in the practical training of health workers in health education methods and practices. Mr Moarefi was previously director of the Health Education Division of the Ministry of Health in his own country.

BOGOTÁ COLOMBIA

Dr Elizabeth Nora Mackay of Canada took up duty recently in Bogotá as a health statistician

appointed by WHO to assist the Government of Colombia in this sphere. Dr Mackay holds an M D degree of McGill University and a DPH degree of the University of Toronto. Since 1951 she has been serving as medical specialist in the Ontario Department of Health Division of Medical Statistics.

MEXICO CITY

Dr A J Walker graduate of McGill University Canada and parasitologist has been granted leave of absence from his post of Associate Professor of Tropical Medicine in Tulane University for Assignment to the PASB Office of Co-ordination of the malaria eradication programme now in operation in Mexico.

WHO HEADQUARTERS GENEVA

WHO has appointed Dr Maria Pfister of Switzerland as second medical officer in its Headquarters Mental Health Section. Dr Pfister's previous broad experience working as a psychiatrist and psychoanalyst in the Swiss Federal services for refugees and repatriated Swiss during the post war period should prove of great value in helping to direct this expanding sphere of WHO's work. She is the author of a number of publications on mental health and refugee problems.

WHO REGIONAL OFFICE FOR THE AMERICAS

The Pan American Sanitary Bureau which serves as the WHO Regional Office for the Americas recently appointed a new chief for its Division of Administration in succession to Mr Harry A Hinderer. The candidate selected is Mr D F Simpson who comes to the Bureau from the United States Department of Health Education and Welfare where he was director of the Division of General Services. Mr Simpson has written a number of articles on management in health agencies.

Mankind Against the Killers

This is the provocative title of a recently published book by James Hemming about man's fight against disease and the important role which is played in this fight by WHO. Dr Brock Chisholm WHO's first Director General contributes a foreword in which he says "It is the first time to my belief that a book dealing with health on a world scale has been attempted with the aim of interesting young people. That it will interest them I feel sure—and not only them but older readers as well. The author marshals his facts with skill but he does more: he breathes life into them to give us a book full of the spirit of adventure." Amply illustrated with pictures from all parts of the world and including a number of clearly-drawn charts and diagrams the book is printed in large readable type and is designed primarily for schoolroom use. It is now being translated into Spanish and an abridged version is in preparation for classroom use in India. *Mankind Against the Killers* is published by Longmans Green and Co. price 15/-

Review of WHO Publications

*Specifications for Pesticides Insecticides
Rodenticides Molluscicides and Spraying
and Dusting Apparatus*
Geneva (World Health Organization)
400 pages 22 figures 4 tables
Price £2 \$8 00 or Sw fr 24 — (Cloth
bound)

This manual contains the various specifications established by the WHO Expert Committee on Insecticides at its second third, fourth fifth, and sixth sessions for the various pesticides against vectors of diseases of man and for apparatus for applying those pesticides. It is intended to serve as a guide for users and manufacturers of these products and sprayers.

The work is divided into four parts dealing with insecticides rodenticides molluscicides and spraying and dusting apparatus respectively. The first, and longest part gives specifications for technical grade insecticides

water dispersible powder concentrates emulsion concentrates and dusting powders and for auxiliary chemicals (anti louse chemicals synergists and anti oxidants). The two parts dealing with rodenticides and molluscicides include specifications for technical grade products and for two concentrated rodenticide preparations. The fourth part gives specifications for compression sprayers hand sprayers stirrup-pump-type sprayers, and for hand-carried and front-carried dusters. Annexes contain photographs and diagrams of various types of apparatus and a number of tables.

This volume supersedes the work entitled *Insecticides Manual of Specifications for Insecticides and for Spraying and Dusting Apparatus* published in 1953 in a loose leaf binder. The numerous additions and modifications to the original specifications have made it necessary to re issue this work in a new format.

THE TRAINING OF SANITARY ENGINEERS

Schools and Programmes in Europe
and in the United States

MILIVOJ PETRIK

Education in sanitary engineering in the United States

Sanitary engineering education in schools of public health

Training in sanitary engineering in schools of engineering

Training in sanitary engineering in Europe

ANNEXES

Duration of undergraduate studies in civil engineering or sanitary engineering

The education and training of sanitary engineers in Europe report on a WHO symposium

Definition of environmental sanitation and references to the education of sanitary engineers in WHO expert committee reports

MEAT HYGIENE

V. E. ALBERTSEN — R. BENOIT — T. BLUM — Phyllis G. CROFT
C. E. DOLMAN — H. DRIEUX — R. I. HOOD — M. J. J. HOUTHUIS
A. JEPSEN — H. H. JOHANSEN — M. M. KAPLAN — S. O. KOCH
G. SCACCIA SCARAFONI — G. SCHMID
F. SCHONBERG — H. THORNTON

Since the dawn of history man has had to match his wits against two- four- and six-legged adversaries in a struggle for existence. Once upon a time when he won these contests he ate as much of his opponent as he could stomach. Today the idea of eating meat in so crude and indigestible a form is abhorrent to most people with the development of agriculture and animal husbandry however mankind has come "to depend increasingly for strength and sinew upon the cooked flesh of tamed herbivores. But the widespread use of such animals for food has brought in its train many problems. Meat is a perishable commodity and its poor handling, whether by the slaughtering, the retailer or the housewife is likely to result in ill health and wastage. The farmer too has a part to play in providing the consumer with safe and wholesome meat: he is responsible for the health and care of the animals before slaughter.

This comprehensive and well illustrated book contains contributions from meat hygiene experts in many parts of the world. Besides dealing with the practical health problems of the meat industry from the ante mortem care of slaughter animals to the hygienic processing and marketing of meat and the sanitary disposal and reclamation of by-products it covers such wider aspects of meat hygiene as the epidemiology of meat-borne diseases, the training of meat inspectors, the current meat hygiene practices in a number of European countries and the special meat hygiene problems in the tropics. In addition much detail—on laboratory techniques for the detection of meat-borne diseases, on meat hygiene regulations in various countries and on design of abattoirs—is given in annexes. The book ends with a useful bibliography classified according to the broad subjects under which the various contributions are grouped.

This monograph includes a number of the papers read at the WHO/FAO Seminar on Meat Hygiene held in Copenhagen in February 1954 as well as a review of the salient features of the discussions. These papers have where necessary been expanded or brought up to date and several new articles have been contributed. The monograph is not intended as a universal guide to meat hygiene: its aim is to throw light on recent advances and problems in the many and diverse aspects of this vast subject for the benefit of the responsible authorities and students in public health and in veterinary science.



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CHRONICLE OF THE WORLD HEALTH ORGANIZATION

CONTENTS

	Page
Resistance of insects to insecticides	397
Accident prevention in the home	402
Virus laboratories Problems and needs	404
Some aspects of cancer in females	406
The Non Governmental Organizations and WHO	410
 Epidemiological and Statistical Information	
Mortality from pneumonia	414
 Health Legislation	
Malaria existing legislation surveyed	420
 Notes and News	
Sanitary Regulations Seminar	421
Pilot project on trachoma	421
Mecca pilgrimage	422
Regional Nursing Congress in Mexico City	422
Ecological study of snail vectors	423
Survey of dental problems in the Americas	423
Yemenite health workers complete training	424
WHO Fellowships for Indian professors	425
Classification of snails	425
Public health work in the Americas	425
 Review of WHO Publications	426

SCHEDULE OF MEETINGS

- 10-15 December Expert Committee on Mental Health, Geneva
- 10-15 December Expert Committee on Health Statistics, Geneva
- 7 12 January Standing Committee of the Executive Board on Administration and Finance Geneva
- 14-20 January WHO Tuberculosis Workers Conference, New Delhi
- 15 26 January * Nineteenth session of the Executive Board Geneva
- 21 26 January Seminar on Application of International Sanitary Regulations Maracay
- 31 March Regional Training Course on Rabies Caracas
13 April
- 7 May 24 May * Tenth World Health Assembly, Geneva
- 27 31 May * Twentieth session of the Executive Board Geneva

* Termination dates are tentative

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RESISTANCE OF INSECTS TO INSECTICIDES

The number of insect species of public health importance which have given evidence of resistance to insecticides has continued to rise in recent years and the total may now be taken as 37 in comparison with 13 species in 1950 and only one in 1946. This rise was remarked on in the report issued after the conclusion of the seventh session of the Expert Committee on Insecticides which was held in Geneva between 10 and 17 July 1956. Events indeed have confirmed the fears felt by members of the WHO Symposium held in Rome in October 1953¹ that vector control was threatened by the development of resistance.

Resistance in *Anopheles* mosquitoes

The Symposium's 1953 report stated that "among malaria vectors resistance has not so far developed to the point of compromising the success of control measures". The Expert Committee's 1956 report says "a definite physiological resistance now exists locally in at least four species of *Anopheles*". At the present time *A. sundanicus* can no longer be controlled with DDT at points along the north coast of Java and the spraying programme is therefore based on dieldrin. In Greece the control of *A. sachsi* in houses by DDT is now ineffective and the resistance also extends to BHC and chlordane. DDT resistance has appeared in *A. stephensi* on the Persian Gulf coast of Saudi Arabia. Fourthly a population of *A. gambiae* in northern Nigeria has been discovered to be resistant to dieldrin. On laboratory study this resistance is approximately 800 times the normal. It should be added that *A. quadrimaculatus* which had formerly

shown only a slight decrease in DDT susceptibility has shown dieldrin resistance in Mississippi, USA.

Resistance in *Aedes* and *Culex*

Recently it has been found that larvae of *Aedes aegypti* in Trinidad are now a thousand times as resistant to DDT as a typical normal laboratory population of *A. aegypti*. Reports are being received that control with DDT is failing in certain other Caribbean islands and in parts of Venezuela. The resistance of the salt marsh *Aedes* of Florida and the irrigation water *Aedes* of California have rendered obsolete the use of any chlorinated hydrocarbon insecticide for larvae control.

The main encephalitis vector of California, *Culex tarsalis*, is similarly resistant. Valid quantitative evidence of the acquisition of DDT resistance by adults of *C. quinquefasciatus* (*C. fatigans*) has come from Reunion and from Delhi, India, while its resistance to control has been reported from five South American countries. Larvae of *C. fatigans* in Georgetown, Malaya, are resistant to BHC. The common house mosquito *C. pipiens* now shows resistance to larval control by DDT in parts of the USA, recalling the adult resistance of *C. molestus* discovered in Latina, Italy, in 1947.

Resistance in *Pediculus* and *Pulex*

In the last report in the *Chronicle*² the appearance of DDT resistant body lice in Korea and Egypt was noted. Since that time WHO has been conducting a world wide survey of resistance in lice by means of special

¹ See *Chron. Wld. Hlth. Org.* 1954, 1, 3.

² *Chron. Wld. Hlth. Org.* 1954, 1, 3.

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promotion of needed research and (e) the facilitation of the procurement of personnel and funds. The Committee also recommended that WHO set up standard tests for insecticide susceptibility and promote their use so that resistance may be detected as it appears.

Accordingly WHO is in process of setting up standard tests for the susceptibility of adult and of larval mosquitos to chlorinated hydrocarbon insecticides and has refined its present test for the susceptibility of *Pediculus*. It is promoting a number of research projects by means of grants and is drawing the attention of other granting agencies to deserving proposals for study. Regional and Headquarters symposia on the subject are planned. A bimonthly information circular on the resistance problem is being distributed to research workers in the field. A Headquarters post of scientist (biologist)³ has been created for full time attention to matters of insecticide resistance.

Pattern of resistance

It is now recognized that there are two main types of resistance in the housefly: one to DDT and its analogues and the other to dieldrin, chlordane and other cyclodiene compounds as well as to gamma BHC. Recent studies on cross resistance show this to be the case in other disease vectors. The DDT resistant *Anopheles gambiae* and *A. stephensi* are of normal susceptibility to gamma BHC and the cyclodiene compounds. The dieldrin resistant *A. gambiae* and *A. quadrimaculatus* are resistant also to gamma BHC but normally susceptible to DDT. The DDT resistant *Culex molestus* adults were controlled by chlordane or BHC but the BHC resistant *C. fatigans* larvae were controlled by DDT. The DDT resistant *Aedes aegypti* are susceptible to gamma BHC and the cyclodiene compounds.

DDT resistant *Pediculus* too are found to be susceptible to BHC almost everywhere except in Japan. The chlordane resistant *Blattella* showed little increase in resistance to DDT.

On the other hand resistance to virtually all chlorinated hydrocarbon insecticides is shown by the salt marsh *Aedes* of Florida, the irrigation water *Aedes* and *Culex* of California, *Anopheles sacharovi* in Greece and probably by the *Ctenocephalides* fleas in southern USA.

Physiology of resistance

Research during the last few years has indicated that the main cause of DDT resistance in the housefly is an increased rate of detoxification. Houseflies resistant to DDT dehydrochlorinate this insecticide to DDE in general the more resistant the strain or individual the greater the DDE production. Species of insects which are normally refractory to DDT can also detoxify DDT while normal susceptible houseflies produce only a small amount of DDE. This conversion is brought about by an enzyme called DDT-dehydrochlorinase which can be isolated and which when activated by glutathione can produce DDE in vitro.

Other factors besides dehydrochlorination may be involved in resistant strains such as a heavier cuticle, a reduced rate of absorption of DDT, a higher content of Fe or cytochrome oxidase or a greater amount of fat. Present evidence indicates that they are secondary although matters are not yet closed.

DDT resistance in *Aedes aegypti* has been found to be associated with DDE production *in vivo* but not *in vitro*. The same occurs in an induced DDT resistant strain of *Blattella*. Resistant *Pediculus* contain a DDT dehydrochlorinating enzyme but so do the normal lice.

BHC resistance in the housefly has been found to be associated both with a decreased

³ At present held by Professor A. W. A. Brown on leave of absence from the University of Western Ontario.



These houseflies (*Musca domestica*) were killed by 10 mg of DDT in 6-8 hours. But as is pointed out in the article DDT now has little effect on *Musca domestica* in certain areas of the world.

test kits. A high degree of resistance to DDT has been discovered in two towns of South Africa, in Hong Kong and in most regions of Japan. Resistance greater than that found in Egypt was found to be present in Iran, Turkey, Syria, Jordan, Peru and Chile and in a broad band extending across the continent of Africa from Ethiopia to Senegal.

Resistance of *Pulex irritans* to control by DDT has evidently developed in the east Mediterranean and central South American regions, but quantitative evidence is still awaited. *Ctenocephalides* fleas have also become DDT tolerant in southern USA and northern South America. The evidence on *Xenopsylla cheopis* is still inconclusive.

Resistance in other insects of public health interest

Instances of resistance to DDT by the bedbug *Cimex lectularius*, with varying degrees of proof, have come from all over the world: i.e. Hawaii, USA, Congo, Italy, Greece, Lebanon, Israel, Iran, India and China. A similar resistance has been confirmed for *C. hemipterus* in Taiwan.

The cockroach *Blattella germanica* is now resistant to chlordane in many cities of the USA, necessitating the return to pyrethrins for control, but two cases of pyrethrin resistance have now appeared.

With the housefly *Musca domestica* the interest has now changed to places where it is not resistant to chlorinated hydrocarbons. Japan, Korea, the United Kingdom and southern Germany seem to qualify in this regard and so do India and Ceylon where *M. nebulosa* is the predominant species. Elsewhere the use of these insecticides for the control of flies and flyborne diseases is now being abandoned.

ROLE OF WHO IN THE EMERGENCY

The Expert Committee on Insecticides, noting that the problem of resistance is growing more rapidly than are measures to deal with it, recommended that WHO assume leadership in the stimulation and coordination of an international research programme. Among its more important activities should be included (a) the collection and dissemination of information on the problem, (b) the

DDT to DDE in the resistant housefly DDT synergist mixtures have given disappointing results in the field and laboratory evidence indicates that the housefly can go on to develop resistance to the mixtures

A more radical alternative in insecticides is offered by the organo-phosphorous compounds the Symposium's report in fact noted that "insects have not developed resistance to these substances" And so this change has been made both for adult housefly control in the USA and Denmark and also for larval culicines in California and Florida But the housefly has now developed resistance to parathion diazinon and resitor in Denmark and to malathion and dipterex in parts of Florida Laboratory selection has increased the resistance of *Musca* to parathion malathion diazinon and chlorthion by amounts of the order of 20 times The possibility of resistance of *Culex tarsalis* larvae to malathion is now under study

It is not yet known whether this resistance to organo phosphorous compounds is any more than vigor tolerance although in Denmark it is enough to inhibit control Although at present these compounds are in general more expensive more hazardous to apply and less persistent in their residual activity yet such a wide variety of them is becoming available that it is possible that certain compounds and formulations will prove practical It is also considered that the effectiveness of mixtures of organo-phosphorous compounds with chlorinated hydrocarbons should be investigated

FUTURE OUTLOOK

The report of the Expert Committee on Insecticides did not imply that a single "answer" to resistance is expected but rather that practical countermeasures demand an increase in knowledge on many fronts The resistance problem is after all a collection of individual cases differing in species insects

cide and locality each demanding its own solution One common factor underlies the entire problem namely the induced evolution of the insect by the selective action of the insecticide and if the conditions are right the acquisition of resistance is inexorable

Among the conditions favouring the development of resistance the following four can be mentioned (1) the species concerned being constitutionally able to develop resistance by containing the necessary genes somewhere in its population (2) the persistence of insecticide deposits which have decayed to a level which kills only a proportion of the insects (3) the exposure of larvae as well as adults to the same insecticide (4) the involvement of the greater part of the field population in the insecticide application Laboratory studies now in progress are investigating the first and the third of these points as they concern certain anopheline vectors a standard bio-assay test will be developed by WHO to shed some light on the second point the Expert Committee particularly recommended the type of ecological observations that might elucidate the fourth point

There is a feeling in public health circles that time is running out in the use of insecticides for vector control and that the present point of vantage must be exploited to the full before it is generally negated by resistance Therefore the short term countermeasure is to have substitute insecticides of proven effectiveness ready to be thrown into the breach immediately resistance appears in disease (e.g. malaria) and vector (e.g. *A. aegypti*) eradication programmes The long term aim is to recommend such control measures as will delay as long as possible the development of resistance in vectors (e.g. *Pediculus Pulex*) whose need for control is continuous so that there always remain some insecticides available to which resistance has not yet extended

There is an urgent and vital need for fundamental research on the physiology of

absorption of the toxin and an increased rate of detoxification. Nothing is yet known of the physiological mechanism of dieldrin resistance nor indeed of dieldrin susceptibility.

Genetics of resistance

Until recently it was considered that DDT resistance in the housefly was due to the accumulated action of a number of genes. But with the recent application of better genetical techniques it has become evident that it is due primarily to a single gene in a given strain. A different gene is responsible for BHC and chlordane resistance.

The dieldrin resistance of *A. gambiae* in northern Nigeria has been very promptly and definitely shown to be due to a single gene. The three possible genotypes—resistant homozygotes, intermediate heterozygotes and susceptible homozygotes—may be identified in a population by toxicological test, the first genotype being 800 times as resistant as the last.

Evidently these specific genes for resistance are already present in the population in low frequency, awaiting the insecticide to increase their frequency by selection. They are not induced by the insecticide. DDT, for example, is not mutagenic. Nor can inheritable DDT resistance be induced in a fly by exposing it to sub-lethal doses of DDT; it can only be induced in a population by exposure of them all to a dose which kills some of them.

If a resistant population is genetically homogeneous its resistance will persist in the absence of the insecticide. DDT-resistant laboratory strains may retain their resistance for many generations when released from DDT pressure. Field-collected strains when taken into the laboratory may revert quite quickly, being heterogeneous genetically. Discontinuation of the use of an insecticide in the field is generally followed by a decrease in

resistance caused by interbreeding with unselected flies, but resumption of use of the insecticide may bring the resistance back very quickly.

The genetical basis for this phenomenon is probably that in achieving resistance the housefly must have not only the main gene for DDT-resistance but also a number of secondary or satellite gene alleles concerned with vigour or at least the absence of deleterious alleles that may at first have been linked with the main gene. In some instances such secondary genes can be accumulated in the absence of the main gene and confer a degree of tolerance to the insecticide and indeed to other environmental stresses. Their accumulation may be promoted not only by pressure from the insecticide but also by other environmental stresses. This acquisition has been called "vigour tolerance", it is not associated with specific detoxification and involves typically a slight increase in resistance.

ALTERNATIVE INSECTICIDES

DDT resistance can sometimes readily be countered by substituting another insecticide. This has been successfully done with dieldrin for control of *A. sundaeus* in Java and with BHC for control of *Pediculus* in Korea and elsewhere. But these insecticides are chlorinated hydrocarbons also and it is known that DDT-resistant houseflies extend their resistance to BHC and dieldrin very readily. The substitution of pyrethrins is better in this regard and this has been occasionally done with DDT-resistant *Musca* and *Pediculus*. It was also considered the answer to chlordane resistance in cockroaches but pyrethrin-resistant *Blattella* have now developed.

A search has been made for synergists that may reactivate DDT so that control of resistant strains may be regained. DMC and piperonyl butoxide, for example, have this effect since they inhibit the detoxification of

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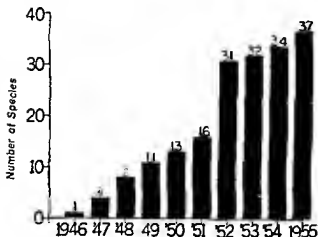
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There is an urgent and vital need for fundamental research on the physiology of

CUMULATIVE NUMBER OF INSECTS OF PUBLIC HEALTH IMPORTANCE RESISTANT TO INSECTICIDES (1946-1955) *



From Quarterman and Schoof *Am J Trop Med* (in press)

resistance, for genetical studies on laboratory strains and field populations of vector insects and for the development and evaluation of new insecticides and formulations as an addition to the stock of knowledge on the problem. It is equally important that public health workers be kept informed of the current situation as it concerns their own areas not only by periodically testing the susceptibility of their own vectors and being on the alert for any failure in control but also by the receipt of a free flow of information on the resistance problem promptly transmitted to them by WHO. Only well informed personnel can display the flexibility and resourcefulness necessary to cope with the resistance problem.

ACCIDENT PREVENTION IN THE HOME

The steady decrease in the death rate from common infectious diseases during the past twenty years has had the effect of throwing into sharp relief the urgent problem of accidents in the home. As infectious disease deaths have fallen so accident rates have risen. The year 1900 for example saw 43 000 deaths in England and Wales from measles, whooping cough, diphtheria, typhoid and scarlet fever while fatal accidents only accounted for 14 200 deaths. But in 1954 the same infectious diseases were only responsible for 229 deaths yet the number of accidental deaths had risen to almost 21 000.

This alarming present day home accident rate, particularly among children and elderly people, was the technical discussion subject at the Regional Committee for Europe's sixth session held in Geneva between 10 and 13 September 1956. In the course of the discussions many aspects of accident prevention were considered and members of the Committee brought forward figures from their

own countries to illustrate the extent and gravity of the problem and to demonstrate the need for further investigations. The summary report on the technical discussion prepared by Professor James M. Mackintosh underlines the acute need for further preventive measures.

Increasing mechanization raises accident rates

Technical advances leading to increasing mechanization in the home have raised many new hazards in domestic life. The report shows for example, that out of the daily 44 accidental deaths occurring in Italy no fewer than 17 take place in the home. Similar figures emerge from studies made in Great Britain where out of the 45 daily accidental deaths 24 occur in and around the home. Much the same thing is true in Sweden where available statistics show that the victims of accidents are usually older people over the age of 65.

Quite apart from the technical advances in the home changing patterns of living have increased the difficulties of home care especially for the very young and the very old

Accident frequency is most marked in the over sixty and under five age groups. The age group two to five is particularly vulnerable because the child at that time is lively curious and inexperienced. Children of this age are liable to burns, scalds and injury by corrosive liquids. They are prone to fall into water and drown.

Elderly people by contrast suffer most frequently from accidents due to stumbling, slipping or falling. Accidents of this type due in many instances to failing sight or unsteady gait result in head injuries or limb fractures. With people of this age comparatively slight injury may lead to serious consequences.

Accident study and investigation

It has frequently been suggested that serious injuries outnumber deaths from accidents by a hundred times or even more. Available statistics deal almost exclusively with fatal accidents by reason of the fact that these are generally recorded in public documents. A few countries have however been able to promote intensive studies in morbidity. In Yugoslavia a study of accidents in and around the home has been in progress since 1954. Mass investigations of a similar kind are being conducted at Newcastle upon Tyne where one thousand families are having their accident case histories followed up over a period of seven years. The first five year period has been completed and much useful evidence obtained.

Mass studies of a similar pattern are being undertaken in Denmark. In Copenhagen a medical research worker is visiting families and collecting accident facts. However apart from mass studies of the type mentioned above several specialized studies have also

been completed. In the Netherlands for example an investigation was made in 1955 of all children admitted to hospital as a result of accidental injury. Altogether 632 cases were carefully investigated. Results showed that falls accounted for a higher figure of casualties than traffic. Defective housing was the major factor causing home accidents.

A new study of the school problem is being made in two large Italian cities in order to determine the accident factors. From a total of 50 000 accident cases reported and treated in hospitals over a period of five years the number of fatalities was small but 80% of the non fatal accidents led to permanent incapacity. A number of studies have also been carried out on an intensive scale in three hospitals in Zagreb, Yugoslavia. Of the total number of patients admitted injuries due to accidents in the home amounted to 802 (45.4%). No fewer than 484 were children under the age of 14.

Methods of accident prevention

Following discussions on the whole question of accident prevention participants in the debate laid particular stress on the following approaches to preventive work: the need for more intensive study of non fatal accidents through mass studies of unselected populations over a period of years or specialized studies of limited age groups or specific types of accidents; actual safety and preventive measures; education of children and parents to make them accident conscious. Among the preventive measures referred to by the Committee were the safe structural design of homes and their equipment particularly electrical fittings, fires and other forms of heat. Primary measures included the design of safe toys and the protection of children and elderly people from dangerous drugs and corrosive liquids.

Finally considerable emphasis was placed on the importance of education as the greatest single measure in the prevention of

accidents. It was felt that the careful training of children at home and in the school and especially giving them a sense of responsibility for their own safety would lead to progress in

accident prevention. Education likewise comprised the imaginative training of teachers and parents through every suitable media of publicity.

VIRUS LABORATORIES PROBLEMS AND NEEDS

The need for virus diagnostic laboratories, preferably affiliated with or representing an integral part of existing bacteriological laboratories provided the central theme for a WHO sponsored seminar on the public health aspects of virus and rickettsial diseases which was held in Madrid between 16 and 25 April 1956. The general aim of the seminar lay in bringing before governments the need for the establishment and development of virus diagnostic facilities in their respective areas. Linked with this purpose was the obvious desirability of providing information and orientation on well established and new methods of diagnostic theory also of promoting the integration of virus diagnostic activities with existing bacteriological facilities, emphasis being placed on the fact that elaborate installations were unnecessary and that relatively small additions to existing facilities would enable a useful service to be provided.

The seminar was conducted in co operation with Dr Perez Gallardo and the technical staff of the National School of Public Health in Madrid. Planning and organization was carried out by Regional Office for Europe in consultation with WHO Headquarters and with the assistance of a special consultant Dr Michael M Siegel Associate Professor of Bacteriology at the University of Miami.

Present problems and future needs

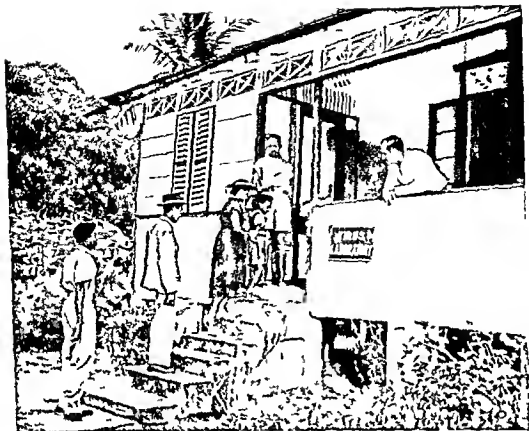
Arising from the comments made during the course of discussion sessions it was appa

rent that the problems and needs of different countries varied considerably. Even the very general question of the location and number of the laboratories was approached differently. However one problem which was common to all countries was the universal shortage of qualified personnel for virus laboratories. This applied equally to availability and to training possibilities for virologists and technical personnel.

The most acute problem however in the development of virus diagnostic activities was the availability of diagnostic reagents. Participants were unanimous in their concern regarding the lack of diagnostic antigens and particularly antisera. The same difficulty also applied for tissue cultures. It was felt that steps should be taken by WHO to provide or help in obtaining diagnostic reagents, although WHO action on this matter would have to depend on the availability of funds. WHO had already made available reagents for the diagnosis of influenza to the WHO Influenza Centres and has planned a similar system of distribution under the co ordinated poliomyelitis programme.

Another problem which received considerable attention was that of laboratory infections. Safety devices and vaccination against the agents used in laboratories were both brought up as useful measures but discussion underlined the fact that there was no substitute for care caution and common sense in the avoidance of infection.

Looking to the future the seminar dis



Although in this photograph suspected fever patients are going into the Sangre Grande virus laboratory in Trinidad for examination the principal work of this field laboratory is rather different. It is engaged primarily in trapping monkeys and rodents for use in research on wild viruses circulating in the blood stream of forest animals.

cussions stressed that if progress were to be ensured in the field of virus diagnostic work there should be a two-way exchange of specimens materials and ideas between the routine virus laboratories and such other institutions as reference laboratories university centres and contagious diseases hospitals. A different aspect of exchange of information lay in the need for virologists to assist clinicians and public health officers by means of consultation and advice. Such a service would of course require basic education of the virologist in the general field of medicine.

Success of virus laboratories depends to a large extent on the degree to which national governments understand and appreciate the need to support them, and the major role which they play in preventive medicine and diagnostic service. Additional research along applied lines is most certainly of the greatest importance and it is evident that at the present stage of virology a public health virus diagnostic laboratory can only render satisfactory service if it is able to devote a reasonable part of its work to research.

During the course of the seminar the tests which were discussed were illustrated in

laboratory sessions at which the participants in groups conducted the tests. These included the isolation and identification of unknown viruses. The other tests and discussions covered a wide variety of virus diseases such

as rabies, smallpox, poliomyelitis, influenza, mumps, various forms of encephalitis and aseptic meningitis, psittacosis, as well as rickettsial diseases such as typhus and Q fever.

SOME ASPECTS OF CANCER IN FEMALES

Certain significant facts bearing on the large increase of deaths caused by cancer of the breast and on trends of mortality from cancer of the female genital organs are revealed in a recent WHO epidemiological study¹. The author reviews the mortality statistics in women from cancer of the breast, the uterus and other female genital organs for 19 countries over the years 1920-53, first considering the general trend of the mortality series for each group of diseases for all ages and then analysing in each sector of mortality the changes which have occurred in the age-specific death rates in some crucial years during the same period.

Mortality from cancer of the breast has increased over the period studied (see Table I) by over 100 per cent in Denmark, Italy, Norway, Netherlands, Sweden, Union of South Africa, Chile, Australia and New Zealand and by over 50 per cent in England and Wales, Scotland, Ireland, Switzerland and the United States of America. In Japan, on the other hand, the death rates appear remarkably low.

Analysis of mortality from cancer of the breast according to age shows that under 25 years this cause of death is usually insignificant, but that there is a rapid rise thereafter. The death rate from this cause among

persons 75 years old and over is usually more than three times that for persons aged 45-54 years and twice that for the 55-64 year age group. There are also wide differences in the levels of specific death rates for corresponding age strata among the various countries. Thus while for women 45 to 55 years old the death rate is usually around 53 per 100,000 women in England and Wales, it is about 43 in Ireland and Australia and less than 10 in Japan.

Mortality from cancer of the uterus has shown a very different trend over the period studied, either having remained more or less stationary or—as is the case in England and Wales, Scotland, Switzerland and the USA—showing a decrease in recent years. The specific mortality increases with age, generally reaching the maximum in the highest age groups in Japan, however the maximum is reached at 55-64 years.

Cancer of other female genital organs has shown a decided upward trend in most countries and in some there are considerable differences between the figures for this type of cancer from this cause and those for cancer of the uterus.

To complete this study there are notes on the interpretation and completeness of the data and the relative influence of the age structure of the population and of the different levels of mortality at different ages as tested for certain countries.

¹ Pascua M. *Bull. W.H.O.* 1956, 15, 3 (Trends of Female Mortality from Cancer of the Breast and Cancer of the Genital Organs).

TABLE 1 DEATH RATE FROM CANCER OF THE BREAST PER 100 000 FEMALES BY YEAR

Year	England & Wales	Denmark	Scotland	Spain	Finland	France	Ireland (Republic)
1970	22.8	12.7	19.5	4.5			
1971	23.5	15.7	20.7	4.5			
1972	24.2	16.2	21.2	4.2			11.5
1973	24.9	16.5	21.3	4.5			15.6
1974	25.5	17.9	22.9	4.5			14.8
1975-74	24.2	16.2	21.1	4.5			14.0*
1975	26.4	17.6	22.4	4.5			14.7
1976	26.0	17.6	21.8	5.4			17.2
1977	27.7	17.9	24.2	5.5			16.1
1978	29.5	18.2	23.2	5.8			16.5
1979	26.8	20.2	4.0	5.0			16.3
1975-79	27.3	19.3	23.1	5.2			16.2
1980	29.2	18.3	23.4	5.4			16.0
1981	28.6	18.4	25.3	5.6			16.9
1982	29.7	21.0	24.9	5.1			16.5
1983	29.4	21.6	4	3			1.1
1984	29.9	22.3	27.0	5.3			16.7
1980-84	29.2	20.4	24.8	5.1			16.6
1985	30.1	24.2	25	7			17.8
1986	31.3	23.7	27.0	4.9	10.0		19.5
1987	30.5	24.1	26.0	5.3	9.5		17.6
1988	31.6	24.4	29.8	5.1	9.2		1.9
1979	32.4	24.2	27.3	5.6	9.6		19.9
1985-89	31.2	24.1	27.1	5.3	9.6		18.6
1940	37.6	25.4	27.5	5.4	8.8		19.6
1941	37.2	26.0	27.3	5.7	10.0		20.2
1942	33.2	25.8	26.9	5.5	9.5		19.6
1943	33.5	25.4	30.1	5.3	10.0	17.3	21.5
1944	33.2	26.5	29.4	5.6	10.3	17.4	21.5
1940-44	32.9	25.9	28.2	5.3	9.7	17.3	20.3
1945	33.0	26.9	30.0	5.7	11.7	16.3	18.3
1946	3.0	29.4	26.2	5.5	10.9	16.2	22.5
44	34.8	26.6	29.6	5.2	9.5	16.5	18.5
1948	35.0	27.0	29.0	5.1	11.1	17.9	23.7
1949	34.9	26.3	30	5.7	12.0	18.6	22.7
1945-49	34.5	28.4	28.9	5.9	11.0	17.1	21.0
1950	35.0	31.8	30.7	6.0	12.5	20.1	21.4
1951	5.2	31.4	30.0		11.7	20.9	21.5
1952	36.3	31.3	30.8		11.9	21.4	22.5
1950	35.5	31.5	30.8	6.0	12.0	20.8	21.8
1953	3	32.0	30.5	6.2	12.4	1.0	23.8

Information to be made available to the public

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as rabies, smallpox, poliomyelitis, influenza, mumps, various forms of encephalitis and aseptic meningitis, psittacosis, as well as rickettsial diseases such as typhus and Q fever.

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¹ *Pascua M. P. L. and H. G. 1956 15 54 Trend of Female Mortality from Cancer of the Breast and Cancer of the Genital Organs.*

TABLE I DEATH RATE FROM CANCER OF THE BREAST PER 100 000 FEMALES BY YEAR (concluded)

Year	Canada	Chile	USA	Japan	Australia	New Zealand
1920		10	15.3		11.7	11.0
1921		11	15.8		13.6	14.5
1922		09	15.6		15.0	12.2
1923		08	15.7		15.1	11.9
1924		14	16.5		14.4	19.6
1920-24		10	15.8		14.0	13.8
1925		15	16.4		15.2	17.7
1926	14.1	13	17.5		15.2	18.2
1927	15.3	23	17.6		16.5	18.3
1928	16.5	11	17.5		16.1	21.4
1929	16.7	22	17.5		16.9	22.4
1925-29	15.8	17	17.3		16.0	19.6
1930	17.7	35	18.5		16.3	22.5
1931	17.7	22	19.1		18.5	21.1
1932	18.8	25	19.7		18.4	20.8
1933	19.7	24	19.8		19.1	23.6
1934	19.0	34	20.8		20.1	26.3
1930-34	18.6	28	19.6		18.5	22.9
1935	18.7	42	20.7		20.6	24.8
1936	21.2	27	21.3		21.8	26.8
1937	20.5	30	21.5		20.6	25.7
1938	22.0	38	22.2		22.7	21.1
1939	21.6	34	22.6		21.3	23.7
1935-39	20.8	34	21.7		21.4	24.3
1940	22.5	35	23.3		22.3	27.2
1941	22.6	35	23.1		24.9	30.6
1942	22.5	43	23.4		23.9	26.9
1943	23.4	36	23.4		26.1	23.4
1944	22.0	4	23.4		24.0	29.1
1940-44	22.8	2.8	23.3		24.2	28.5
1945	22.5	46	4.1		24.2	28.5
1946	23.2	35	4.3		24.7	27.9
1947	23.6	42	24.7	3.0	25.3	26.8
1948	23.7	3.7	25.8	3.0	25.8	27.7
1949	23.4	4.6	24.5	3.3	4.5	29.1
1945-49	23.1	4.1	24.7	3.1	24.8	28.0
1950	22.6	4.7	24.7	3.4	23.5	27.8
1951	22.7	5.7	4.5	3.3	22.5	28.6
1952	23.1		4.9	3.3	24.5	29.4
1950-52	22.8	3.8	24.7	3.3	23.5	28.6
1953	23.9	5.2	25.3	3.3	27.8	25.9

Information either non-existent or of a stable Provisional

TABLE 1 DEATH RATE FROM CANCER OF THE BREAST PER 100 000 FEMALES BY YEAR (continued)

Year	Italy	Norway	Netherlands	Sweden	Switzerland	Union of South Africa
1920	57	102	121		174	85
1921	59	97	136	99	157	79
1922	56	99	129	101	179	110
1923	59	108	144	116	186	109
1924	87	101	147	117	188	117
1920-24	64	101	135	108	177	100
1925	81	113	157	126	195	142
1926	68	103	174	121	212	137
1927	75	113	179	127	212	146
1928	77	129	182	128	201	139
1929	81	127	191	139	189	128
1925-29	76	117	177	128	202	136
1930	87	145	194	155	211	183
1931	90	137	201	142	209	160
1932	95	138	198	157	221	151
1933	97	146	209	146	231	183
1934	101	167	204	157	237	157
1930-34	94	147	201	151	222	167
1935	111	154	205	158	209	175
1936	110	140	232	178	233	222
1937	116	174	234	186	239	212
1938	119	155	251	194	257	180
1939	119	181	238	183	265	207
1935-39	115	161	238	180	241	199
1940	116	183	237	195	252	
1941	115	189	251	196	270	
1942	120	181	240	199	243	
1943	109	169	242	213	279	
1944	109	174	240	207	274	
1940-44	114	179	242	202	264	
1945	116	190	234	216	303	
1946	110	162	244	225	288	169
1947	132	181	240	222	274	184
1948	134	190	243	233	304	169
1949	139	225	257	229	313	203
1945-49	126	186	244	225	296	181
1950	144	213	253	227	294	208
1951	147	250	266	214	297	193
1952	154	232	272	256	310	231
1953	148	232	264	232	300	211
1950-52	158	219	263	272	305	210

Information either non-existent or not available

Provisional

NON GOVERNMENTAL ORGANIZATIONS IN OFFICIAL RELATIONS WITH THE WORLD HEALTH ORGANIZATION

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INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS
THE BIOMETRIC SOCIETY
INTERNATIONAL COMMITTEE OF THE RED CROSS
INTERNATIONAL CONFERENCE OF SOCIAL WORK
COUNCIL FOR INTERNATIONAL ORGANIZATIONS OF MEDICAL SCIENCES
FEDERATION DENTAIRE INTERNATIONALE
INTERNATIONAL PHARMACEUTICAL FEDERATION
INTER AMERICAN ASSOCIATION OF SANITARY ENGINEERING
INTERNATIONAL COUNCIL OF NURSES
INTERNATIONAL HOSPITAL FEDERATION
INTERNATIONAL FEDERATION FOR HOUSING AND TOWN PLANNING
INTERNATIONAL LEPROSY ASSOCIATION
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CENTRAL COUNCIL FOR HEALTH EDUCATION
INTERNATIONAL COMMITTEE OF CATHOLIC NURSES
MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION
UNION OSE—(Child Relief and Relief Protection I.J. and P. pulation)
INTERNATIONAL UNION FOR HEALTH EDUCATION OF THE PUBLIC
INTERNATIONAL HYGIENOLOGICAL ASSOCIATION
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INTERNATIONAL ORGANIZATION AGAINST TRACHOMA
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impossible to establish any logical classification to cover the innumerable examples of working relationship and the results which these later achieved. The only limits which were imposed were those laid upon the work and resources of WHO on the one hand and the qualifications and activities of the NGO's on the other.

There is little doubt that the Organization's development during its first eight years and some of its achievements during that period were due in part to the close collaboration of WHO and the non governmental organizations. This fact was indeed underlined on several occasions by the Assembly and by the Executive Board. It was of course certain that collaboration of this character did not come about by chance. The new ideas of the inter war years and perhaps more important the widespread international collaboration in the field of medicine during the war itself brought about a change of climate in international thinking. Thus it was that in 1946 some 60 governments were able to agree on the creation of a world health organization. Another sign of this change was the growth of many non governmental organizations concerned with practically every aspect of medical science. However although the governments had set up WHO it was for the Organization itself to make its mission understood and in this task the help of many powerful NGO's did ensure that WHO's aims and objects were brought home to the people of many different countries and faiths.

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The number of NGO's which have so far requested to be admitted to official relationship with WHO is now 68 and this is indeed a good proof of the interest these organizations show in WHO's work. However in order to stress the significance of these relationships the Executive Board each year

THE NON-GOVERNMENTAL ORGANIZATIONS AND THE WORLD HEALTH ORGANIZATION

Forty non governmental organizations with offices throughout the world, are at present in official relationship and work in close collaboration with WHO. These organizations, and many others, draw ideas and inspiration from WHO in its capacity as a specialized agency of the United Nations. Conversely WHO has recourse to many NGOs in certain specialized fields. How did this closely linked system of co operation between non governmental and inter governmental organizations arise? What obligations are incurred by participating in it?

When the League of Nations was created in 1919, the number of these NGOs was still relatively small. However between the wars their numbers grew very rapidly and by 1945 when representatives of many governments were in San Francisco to draft a charter for the United Nations it was certain that they could not ignore the immense store of goodwill represented by some 1 000 NGOs with a membership of nearly 700 million people. Indeed, these organizations had become of such importance that it was essential to bring them into direct collaboration if the United Nations were to accomplish its tasks successfully. This participation was achieved by the specific references to collaboration contained in Article 71 of the United Nations Charter. Indeed this Article constituted a juridical innovation as for the first time a constitutional link had been established between governmental and non governmental organizations.

The framework of collaboration

When the constitutions of certain of the United Nations specialized agencies were drafted due consideration was given to the

terms of Article 71 of the United Nations Charter, and through the wording of certain Articles in these constitutions the non governmental organizations were assured of consultation and co operation with the Agencies. For example Article 71 of the WHO Constitution reads as follows:

The Organization may on matters within its competence make suitable arrangements for consultation and co operation with non governmental international organizations and with the consent of the Government concerned with national organizations governmental or non governmental.

Once the principle had been established in its Constitution, the WHO Interim Commission and later the First World Health Assembly introduced certain provisions designed to regulate the admission of NGOs to a status which was called official relations with WHO. The Interim Commission stated that these provisions would strengthen the WHO and prevent the spread of the idea in the medical profession that the WHO is an inter governmental body necessarily tends to oppose the legitimate interests of the medical profession. Advice from these non governmental professional bodies would be of great benefit to the studies that the WHO might undertake in the field of medical practice and medical education.¹

With these precepts as a background it was possible to develop many forms of collaboration between WHO and the non governmental organizations. However no attempt was made either by the Assembly or the Executive Board to codify or define the limits of any collaboration. In fact this would have been impossible as it was also

OFFICIAL PUBLICATION 497

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There is little doubt that the Organization's development during its first eight years and some of its achievements during that period were due in part to the close collaboration of WHO and the non governmental organizations. This fact was indeed underlined on several occasions by the Assembly and by the Executive Board. It was of course certain that collaboration of this character did not come about by chance. The new ideas of the inter war years and perhaps more important the widespread international collaboration in the field of medicine during the war itself brought about a change of climate in international thinking. Thus it was that in 1946 some 60 governments were able to agree on the creation of a world health organization. Another sign of this change was the growth of many non governmental organizations concerned with practically every aspect of medical science. However although the governments had set up WHO it was for the Organization itself to make its mission understood and in this task the help of many powerful NGOs did ensure that WHO's aims and objects were brought home to the people of many different countries and faiths.

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The number of NGOs which have so far requested to be admitted to official relationship with WHO is now 68 and this is indeed a good proof of the interest these organizations show in WHO's work. However in order to stress the significance of these relationships the Executive Board each year

subjects the applications made to the most careful scrutiny, and this has meant that up to the present only 40 non governmental organizations have been admitted to official relations with WHO

Those organizations which are in official relations with the Organization receive extensive documentation on its work, send representatives to its meetings, and maintain contact with members of its staff. In addition, there is the important question of concrete collaboration in certain WHO projects. All these activities are reflected in publications issued by NGOs in reports made by their officers and in debates at their conferences, in which WHO representatives often participate. Thus WHO is often the subject of comment, appraisal and even criticism by the non governmental organizations. There can be no doubt that this helps the Organization to keep in close touch with outside medical and expert opinions.

If WHO profits from these relationships, the reverse process is also true. If for example the Secretary General of an NGO visits a federated national association he may well make use of the services available at a WHO regional office. WHO may be asked for advice by an organization with regard to the functioning of a hospital. WHO experts may be invited to participate in study courses organized by NGOs or WHO and a group of NGOs may unite their efforts to analyse various aspects of a particular problem. In fact all these instances show that there is no one single beneficiary in this process of collaboration. Both WHO and the non governmental organizations benefit and both make their contribution to the common good.

The non governmental organizations in official relationship with WHO cover a wide variety of medical subjects for example biometry, pharmacy, sanitary engineering, leprosy, rheumatism, cancer, tuberculosis, microbiology, health education, blood trans-

fusion, trachoma, gynaecology, physiotherapy, paediatrics, mental health, nursing hospitals etc. Nevertheless, within these clearly defined fields co-operation may take a great many forms.

It occasionally happens that WHO has to rely almost exclusively on the technical assistance given by a non governmental organization in a specific field. A case in point was that of two very closely linked organizations, the International Commission for Protection against Radiations and the International Commission on Radiological Units. Without the assistance of these two bodies which between them concentrate practically the whole of world expert knowledge of the subject in question, WHO would not have been able to contemplate an adequate approach to the immensely important question of the utilization of atomic energy for peaceful purposes.

Another instance of a different form of co-operation is the practice which has now become customary of requesting the advice of NGOs in regard to the constitution of WHO Expert Advisory Panels and in the recruitment of consultants. These consultants may be required to carry out certain specific duties within the WHO Secretariat either at Headquarters or in a regional office and to fulfil certain special missions in connexion with assistance programmes to Member States or individual teaching missions.

Non governmental organizations are not invited to participate as such in meetings of WHO Expert Committees. However, it is not uncommon that a member of an Expert Committee belongs to an NGO which is active in the particular subject under discussion and thus the member can without representing his organization or speaking on its behalf bring his experience to bear for the benefit of other participants in the Committee.

There can be no better example of the value of collaboration than the active partici-

pation of a non governmental organization in a WHO project. Once a precise agreement has been reached on the scope of the work to be done the particular NGO will then undertake a clearly defined task on behalf of WHO. There are numerous examples of such agreements and it would seem to be of general interest to cite some of the work projects undertaken.

(a) the World Federation for Mental Health undertook to collect details on psychiatric treatment in penitentiaries and on the rehabilitation of patients suffering from mental disease.

(b) the International Council of Nurses agreed to publish a booklet on advanced training programmes for nurse tutors giving the continuation training programmes in 127 establishments.

(c) the International Federation of Hospitals was concerned with the preparation of plans for hospitals in tropical regions.

(d) the International Paediatric Association made a study of the teaching of paediatrics in Europe.

(e) the International Dental Federation prepared a world directory of dental schools and a study of the various types of dental services and finally

(f) the International Association for the Prevention of Blindness undertook a search for an internationally acceptable definition of blindness.

Quite apart from the various forms of collaboration already mentioned there are others which in their own way are equally valuable. Examples might be given of a non governmental organization helping WHO to prepare a technical conference or collecting documentation for a WHO Expert Committee or supplying information on regional conditions. On the occasion of World Health Day each year one or more of the NGOs according to the chosen theme collaborate in the celebration of the event and thus help WHO obtain wider publicity. A final example

might be taken from the proceedings at the Ninth World Health Assembly which had for the theme of its technical discussions "Nurses their Education and their Role in Health Programmes". At WHO's request, the two principally interested organizations namely the International Council of Nurses and the International Committee of Catholic Nurses as well as the League of Red Cross Societies asked their national associations to arrange meetings and discussions to obtain the collaboration of the public authorities and to report on the results. More than 40 reports were sent in and these provided extremely valuable basic material in the preparation of the Assembly Technical Discussions.

Special forms of collaboration

Examples which have already been given refer usually to the great majority of NGOs whose activities are limited to a special sphere of operations. There are however certain other organizations in official relationship which cannot be placed in a definite category by reason of the wide scope of their activities. In particular mention should be made of the International Committee of the Red Cross, the League of Red Cross Societies and the World Medical Association.

It is obvious that the support given to WHO by the two great international Red Cross institutions cannot be limited to a formula. Similarly the relations between WHO and the World Medical Association embrace a number of different subjects and the First World Conference on Medical Education—soon to be followed by the second—provides perhaps a fitting example of the scope of this collaboration.

Two other non governmental organizations occupy specific places in relationship to WHO. They are the World Federation of United Nations Associations and the Council for International Organizations of

MORTALITY FROM PNEUMONIA

		Infant mortality (Rate per 1000 live births)			General mortality (Rate per 1000 inhabitants)			
		A	B	Difference	A	B	Difference	
Japan	1951-52	M	7.8	10.5	+35	0.52	0.59	+13
		F	7.0	9.4	+34	0.45	0.51	+12
Ireland	1951-52	M	5.6	7.1	+23	0.42	0.46	+8
		F	4.7	5.8	+24	0.39	0.41	+6
Norway	1951-52	M	3.6	4.0	+11	0.38	0.38	+1.3
		F	2.8	3.2	+15	0.46	0.47	+1.5

A not including pneumonia of newborn

B including pneumonia of newborn

It is however unlikely that the differences in the rates as between countries are to be entirely explained by the inclusion or non-inclusion of deaths due to pneumonia of the newborn nor even—in cases where it has been possible to adjust the figures—by the real differences in mortality from pneumonia. It must be remembered that the figures are affected by the degree of accuracy in diagnosis of causes of death particularly with respect to aged persons in whom pneumonia is quite frequent. Finally in regard to pneumonia of the newborn—concerning which there are considerable variations from country to country—the efficacy or inefficacy of systems of registration of live births must be taken into account.

Evolution of mortality from pneumonia

It is a well known fact that many and various factors intervene in morbidity and mortality. In a given community the effect of social and economic factors on infant morbidity and mortality will vary. The size and composition of families, housing conditions, diet, family incomes, existence or non-existence of appropriate medical services and the extent to which they are used—these are only a few of the contributory elements.

A number of points worthy of some attention emerge from brief analysis of the details published in the *Report*.

(1) During the period between 1936-1938 and 1951-1953 the drop in mortality from pneumonia continued and became more marked for all age groups except that of

80 years and over (see Table II) and this drop was due in particular to the administration of antibiotics.

(2) This decrease contributed very largely to the lowering of mortality among infants and young children. It should be noted that in most countries pneumonia is one of the principal causes of infant mortality—as important as the communicable diseases of early infancy and gastro-enteritis.

(3) The absence of any simultaneous increase in mortality from bronchitis proves that the drop in deaths registered as being due to pneumonia was not the result of pneumonia deaths being attributed instead on death certificates to some related cause such as bronchitis.²

Comparisons with general mortality

Mortality from pneumonia is an important item in general mortality. Although in most countries pneumonia causes less deaths than heart diseases, vascular lesions, cancer, genital malformations, diseases peculiar to early infancy, accidents, etc., it is nevertheless one of the principal causes.

Table I shows the proportion of deaths from pneumonia as compared with total deaths in selected countries in 1938 and in the period 1951-53. These proportions range from 4.4% (France) to 15.5% (Italy) in 1938, from 2.5% (New Zealand) to 6.7% (Portugal) in 1951, from 2.5% (New Zealand)

One of the Tables in the *Report* gives the figures for deaths from bronchitis from 1951 to 1953, and also the figures for deaths from pneumonia in some countries (*Epidemiol. Stat. 1 Rep.* 1954, p. 533).

Medical Sciences The former gives its support to WHO in the latter's capacity as a specialized agency of the United Nations In addition to the study courses on WHO which the Federation organizes during each World Health Assembly it also undertakes a considerable amount of educational work on behalf of the Organization

The Council for International Organizations of Medical Sciences was set up a few years ago under the joint auspices of UNESCO and WHO The aims of the Council are to co ordinate the various international medical science associations with regard to their

conferences the dissemination of their work and exchanges of information The Council receives an annual subsidy from UNESCO and WHO, and these organizations may avail themselves of its services When they do not actually take a direct part in the Council's activities they follow the work being done very closely

It is perhaps almost unnecessary to add that through the support understanding and encouragement of enlightened opinion the NGOs greatly assist WHO and the other international agencies in the accomplishment of their mission

Epidemiological and Statistical Information

MORTALITY FROM PNEUMONIA

A recent number of the WHO *Epidemiological and Vital Statistics Report*¹ gives some statistical tables containing the latest available information on mortality from pneumonia for the years 1951 1952 and 1953 (and in some cases 1954) with respect to 14 European and 6 non European countries and side by side with the corresponding figures for the period 1936-38

It might be useful to give here in the first instance, some details concerning the rubric relating to pneumonia in the *International Statistical Classification of Diseases Injuries and Causes of Death* According to the abridged List at present in force (Sixth Revision 1948) 'Pneumonia' includes the following forms of the disease

- Lobar pneumonia
- Bronchopneumonia
- Primary atypical pneumonia
- Other and unspecified pneumonia

Although the content of the rubric in question appears to tally with that of the corresponding rubric in the previous classification (Fifth Revision of 1938) there is nevertheless one difference i.e. deaths from pneumonia among infants under four weeks old which were previously included under pneumonia are now classified under a separate heading in the detailed List (Pneumonia of newborn) in the chapter dealing with early infancy In order therefore to make comparison possible between figures based on two successive revisions of the List the post 1949 figures have been adjusted wherever possible by the addition of the deaths due to Pneumonia of newborn It has however only been possible to effect this adjustment with respect to those countries which use the detailed List for the classification of causes of death

The importance of pneumonia of the newborn in relation to infant mortality (under one year) and to general mortality (all ages) from pneumonia can be assessed on the basis of the following examples

¹ *Epidemiol. Vital Statist. Rep.* 1956 9: 510-532 (No. 9) This number also contains data relating to mortality from cholera in 21 countries, during the past few years

TABLE II COMPARISON (a) OF RATES OF MORTALITY FROM PNEUMONIA (ALL FORMS) FOR SELECTED COUNTRIES BY SEX AND AGE

Country	Periods compared	Variations (%) in mortality rates for each age-group										
		All ages	-1+	1-4	5-19	20-29	30-39	40-49	50-59	60-69	70-79	80 & +
Males												
Australia (clandestine blooded aborigines)	1911-53 1936-38	-4	-41	-23	-80	-67	-80	-76	-64	-5	-11	-15
Canada	1952-54 1936-38	-49	-47	-75	-79	-65	-84	-81	-73	-69	-8	-38
Denmark	1952-54 1936-38	-78	-82	-69	-90	-92	-91	-92	-85	-79	-77	-63
Finland	1951-53 1936-38	(-50)	(-60)	-80	-84	-84	-91	-83	-74	-55	-70	+108
France	1951-54 1936	-24	-57	-80	-84	-88	-79	-79	-57	-33	+76	+101
Germany	1952-54 1936	(-54)	(-39)	(-80)	(-84)	(-91)	(-90)	(-84)	(-74)	(-63)	(-45)	(-25)
Ireland	1951-53 1936-38	-6	-46	-77	-75	-78	-88	-86	-69	-61	-34	
Italy	1951-53 1936-38	-69	-50	-84	-84	-91	-97	-88	-81	-75	-9	-3
Japan	1951-53 1936	(-69)	(-64)	-7	-76	-65	-84	-82	-77	-62	-34	
Netherlands	1952-54 1936-38	-84	-71	-84	-77	-89	-73	-85	-77	-67	-46	
New Zealand (excluding Maori)	1951-53 1936-38	-63	-37	-83	-95	-96	-89	-84	-83	-73	-59	+10
Northern Ireland	1951-54 1936-38	(-53)	(-33)	-91	-76	-91	-87	-89	-69	-49	-3	+80
Norway	1951-53 1936-38	(-67)	(-55)	-65	-68	-83	-93	-90	-83	-80	-66	-33
Portugal	1952-54 1937	(-37)	(-37)	-37	-44	-75	-68	-84	-72	-38	-16	+37
Scotland	1951-54 1936-38	-63	-66	-81	-68	-94	-91	-93	-77	-65	-96	+2
Sweden	1951-53 1936-38	(-64)	(-70)	-86	-87	-95	-94	-90	-85	-71	-29	
Switzerland	1951-53 1936-38	(-67)	(-72)	-87	-89	-89	-89	-89	-85	-73	-7	
Union of South Africa (European population)	1951-53 1936-38	(-44)	(-52)	-69	-68	-83	-73	-74	-70	-54	-31	
United Kingdom (England and Wales)	1951-53 1936-38	-41	-3	-88	-81	-88	-87	-82	-70	-36	+11	+36
United States (American born)	1951-53 1936-38	-64	-63	-80	-84	-89	-87	-87	-74	-69	-62	-54
Females												
Australia (clandestine blooded aborigines)	1951-53 1936-38	-41	-43	-77	-77	-73	-80	-74	-68	-65	-61	-9
Canada	1951-54 1936-38	-53	-37	-75	-75	-83	-87	-82	-73	-80	-71	-48

TABLE I PERCENTAGES OF MORTALITY DUE TO PNEUMONIA (ALL FORMS) IN RELATION TO GENERAL MORTALITY IN SELECTED COUNTRIES 1938 AND 1951-53

Country	1938	1951	1952	1953
Australia (excluding pure blooded aborigines)	66	40	36	35
Canada ^a	70	41	39	40
Denmark	78	44	29	25
Finland	71	43	47	49
France	44 ^b	61	44	54
Germany (Fed. Rep.)	72 ^c	46	40	45
Ireland	57	35	31	29
Italy	155	66	62	64
Japan	89 ^b	60	56	60
Netherlands	68	31	30	32
New Zealand (excluding Maoris)	66	25	25	23
Northern Ireland	58	44	37	39
Norway	95	61	49	52
Portugal	78 ^d	67	65	65
Scotland	61	37	32	30
Sweden	81	39	40	41
Switzerland	66	27	21	25
Union of South Africa (European population)	84	62	58	56
United Kingdom (England and Wales)	54	43	39	43
United States of America	64	30	29	30

Not including pneumonia of newborn

^a Excluding Yukon and North West Territories in 1938 excluding Newfoundland

^b 1936

^c Former Reich territory

^d 1937

to 3.6% (Portugal) in 1952 and from 2.3% (New Zealand) to 6.3% (Portugal) in 1953. It will be noted that from 1951 the rates for Italy correspond to those for other countries. An interesting feature is the percentage drop (in relation to general mortality) in deaths due to pneumonia in the period from 1938 to 1951 in a number of countries.

The sharpest declines were in New Zealand, Switzerland, Italy, the Netherlands, the United States and Sweden where decreases ranged from 62.1% to 51.9%. In Norway, Denmark, Canada, Finland, Australia, Scotland, Ireland, Germany and Japan there were diminutions ranging from 46.3% to 32.6%. In the Union of South Africa, Northern Ireland, England and Wales and Portugal the figures dropped by from 26.2% to 14.1%. In fact, there was a fairly marked decrease for all the countries studied with the exception of France where an increase was registered during the period in question.

Mortality by sex and by age

The differences in male and female mortality rates in the various countries are quite considerable but in general the rate is higher for males.

Table II shows the variations in mortality rates by sex and by age as between the period 1936-38 and the three last years for which figures are available (1951-53 or 1952-54). It will be seen that the rates fell for all age groups except the over 80 group (and in two cases the 70-79 years group) in general the decline was most marked in the 20 to 40 years age groups.

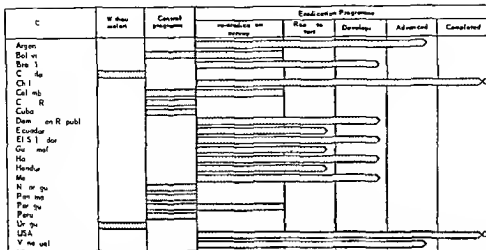
Distribution of the various forms of pneumonia

Analysis of the figures for the latest year for which information is available in each country shows that among the various forms of pneumonia (see page 414) bronchopneumonia is responsible for most deaths in nearly all countries and in general by a wide margin. In Japan, however, lobar pneumonia takes first place; it is responsible for about half the deaths from pneumonia. In Germany and France "Primary atypical pneumonia" and "Other and unspecified pneumonia" account for most deaths.

The above mentioned distribution is the same for both sexes. Since 1951 there have been no very marked annual variations and there seems justification for expecting some stabilization of mortality in this field in the coming years.

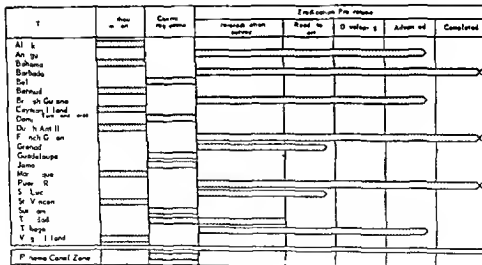
STATUS OF MALARIA CAMPAIGNS IN THE AMERICAS

(April 1956)



WHO 4675

The charts show in schematic form the progress which is being made throughout the Americas in malaria eradication programmes many of which receive direct assistance from WHO



WHO 4675

**TABLE II COMPARISON (%) OF RATES OF MORTALITY FROM PNEUMONIA (ALL FORMS)
FOR SELECTED COUNTRIES BY SEX AND AGE (continued)**

Country	Periods compared	Variations () in mortality rates for each age-group										
		All ages	1†	1-4†	5-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
	</											

The periods compared are indicated in the first column as they are not the same for all the countries mentioned

† Figures in brackets in these two columns exaggerate the drop in mortality from one period to the other. In fact, the data on which the calculations were based included pneumonia of the newborn in the period 1936-38 but not in the periods 1951-53 or 1952-54. Mortality rates for all age groups and for the under one year group are therefore for the later period lower than the real rates. (See page 414)

a Excluding the Yukon and North West Territories in 1936-38 excluding Newfoundland

b In 1938 territory of former German Reich in 1952-54 Federal Republic

c 20-24 years e 35-44 years

d 25-34 years f 45-54 years

g 55-64 years

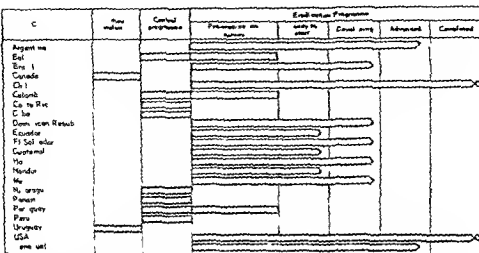
h 65-74 years

i 75 years and over

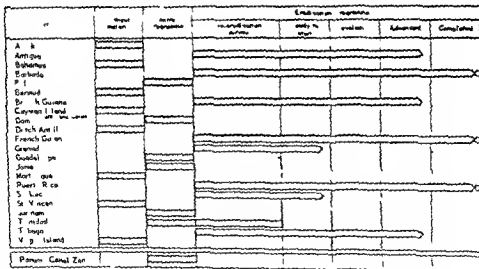
j 85 years and over

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(April 1956)



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**TABLE II COMPARISON (A) OF RATES OF MORTALITY FROM PNEUMONIA (ALL FORMS)
FOR SELECTED COUNTRIES BY SEX AND AGE (continued)**

Country	Periods compared	Variations (a) in mortality rates for each age group										
		All ages	-1†	1-4†	5-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Females												
Denmark	1952-54 1936-38	+72	-78	-86	-88	-91 ^c	-85 ^d	-87 ^e	-80 ^f	-80 ^g	-74 ^h	-63 ⁱ
Finland	1951-53 1936-38	(-43)	(-61)	-82	-86	-87	-88	-79	-70	-58	+2	+93
France	1952-54 1936	-5	-55	-79	-84	-81	-83	-79	-66	-44	-	+8 ^j
Germany	1952-54 1938	(-46)	(-32)	(-80)	(-79)	(-81)	(-82)	(-79)	(-75)	(-65)	(-4)	(-7 ^m)
Ireland	1951-53 1936-38	-51	-40	-73	-67	-84	-80	-83	-75	-65	-	-6
Italy	1951-53 1936-38	-67	-46	-83	-84	-89	-90	-87	-84	-77	-6 ^j	-34
Japan	1951-53 1936	(-60)	(-62)	-74	-79	-85	-83	-80	-71	-8	-	-30
Netherlands	1952-54 1936-38	-60	-69	-78	-73	-88	-68	-78	-79	-65	-	-48
New Zealand (excluding Maoris)	1951-53 1936-38	-45	-22	-79	-91	-94	-93	-92	-66	-69	-40	+7
Northern Ireland	1952-54 1936-38	(-48)	(-6)	-90	-80	-76	-94	-61	-65	-57	-23	+73
Norway	1951-53 1936-38	(-54)	(-53)	-81	-84	-87	-91	-89	-87	-81	-64	-27
Portugal	1952-54 1937	(-39)	(-3)	-38	-37	-75	-71	-67	-60	-46	-34	+23
Scotland	1952-54 1936-38	-54	-63	-9 ^j	-75	-83	-75	-72	-67	-52	-40	+2 ^j
Sweden	1951-53 1936-38	(-59)	(-80)	-81	-83	-83	-91	-87	-81	-74	-	-42
Switzerland	1951-53 1936-38	(-61)	(-71)	-83	-75	-79	-82	-85	-85	-80	-	-59
Union of South Africa (European population)	1951-53 1936-38	(-38)	(-46)	-72	-69	-61 ^c	-66 ^d	-75 ^e	-61 ^f	-62 ^g	-	-71
United Kingdom (England and Wales)	1952-54 1936-38	-23	-51	-88	-76	-79	-78	-71	-60	-49	-8	+43
United States	1951-53 1936-38	-66	-62	-79	-81	-88	-87	-84	-81	-79	71	-9

The periods compared are indicated in the first column as they are not the same for all the countries mentioned.

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d 25-34 years f 45-54 years A 65-74 years

g 75 years and over

h 65 years and over

malarial drugs and to organize health services and give facilities for examination and treatment. In two of the countries surveyed malaria is designated as an occupational disease. Commercial and industrial undertakings are also subject to strict regulations designed to prevent the formation of breeding grounds by interference with hydrological conditions or through land excavation and there are also very often special provisions relating to ricefields.

Only the more recent malaria legislation provides for the use of residual insecticides. The majority of legal provisions relating to the use of insecticides are general in character and precise methods are left to the discretion of the health authorities. In a few countries

insecticides and antimalarials are exempt from excise and customs duties.

This analytical survey published in the *Digest* includes the following chapter headings: Introduction, Endemic zones, Measures in respect of persons (compulsory notification, compulsory examination, compulsory treatment, immigration, malaria as an occupational disease, health education), Malaria control services (organization, powers of the authorities, medical services, distribution of drugs), Imagocidal measures, Larval control measures, Man made malaria (undertakings, ricefields and similar crops), Antimalarials, Miscellaneous, Appendix, Malaria control legislation of Argentina, References.

Notes and News

Sanitary Regulations Seminar

An important seminar on the application of the International Sanitary Regulations is due to be held in Venezuela between 21 and 26 January 1957 under the auspices of the Pan American Sanitary Bureau (Regional Office of WHO for the Americas). This seminar will draw together Directors of Health and officials responsible for the application of the International Sanitary Regulations in the ten republics of South America. The programme will comprise two main topics: application of the Regulations and case reporting. Under the first heading discussions will be held on the general provisions of the Regulations and of those dealing with yellow fever, plague, typhus and smallpox. Under the second there will be an analysis of the progress made in the field of case reporting in South America since 1953. Plans will be discussed for weekly and annual reporting.

In addition the seminar will include general discussions on the new provisions of the

Regulations with special reference to yellow fever and on reports for malaria and the malaria eradication programme.

Pilot project on trachoma

In the course of a recent epidemiological survey on trachoma carried out by a WHO consultant Dr M. Radovanovic in certain districts of the United Provinces and the Punjab in India, some startling facts were brought to light. A door-to-door check in ten villages selected at random showed that the percentage of infected cases of trachoma among children of school age (7-15 years) might run as high as 65 per cent in the Punjab and 78 per cent in the United Provinces. In some parts of the villages surveyed adult percentages ran at 90 for the Punjab and 86 for the United Provinces.

Under an agreement signed between the Government of India and WHO a pilot project for trachoma control has been inaugurated at Tappal, 32 miles from Aligarh. The project will be devoted to

MALARIA EXISTING LEGISLATION SURVEYED

Although it is impossible to draft a uniform malaria control law, by reason of differing regional conditions nevertheless certain steps towards unity have been suggested. At the Fourteenth Pan American Sanitary Conference (1954), for example criticisms were made of the malaria control legislation then in force, inasmuch as it had not been adjusted to the new concepts of malaria eradication. The Inter regional Conference on Malaria for the Eastern Mediterranean and European Regions which was held in Athens in June 1956 came to the same conclusion, and also formulated certain basic principles which might be followed in drafting malaria control legislation. These could serve as a guide to a country which might wish to amend its malaria control legislation or to enact a new malaria control law.

The differences existing in malaria control laws at present in force in 25 countries and territories are revealed in an analytical survey just published in the *International Digest of Health Legislation*¹. Generally speaking the various laws which have been examined may be classified as follows:

1 Those laws few in number whose provisions cover all aspects of malaria control (notification, organization of malaria control services, compulsory examination and treatment, larval control measures, etc.)

2 Those laws which make provision primarily for larval control measures. Some of these have recently been amended to include imagocidal measures. Very often they have been enacted some years ago and are of a uniform type.

3 Communicable disease laws whose provisions generally apply to malaria as well

Countries in which this form of legislation exists do not normally possess a malaria control law.

4 Laws of a purely provisional character dealing mainly with the financing of malaria control campaigns.

Because of the varied nature of this legislation it is not easy to detect any general trends. It is however, noticeable that the concept of endemic zones is developed in a number of laws. While the definitions of these zones vary from country to country, they are nevertheless of importance because malaria control work is primarily carried on in such areas.

Most laws make malaria a compulsorily notifiable disease. However in several countries where malaria is endemic this is not so although it is in others which are free from the disease. It is sometimes specified that notification of a case of malaria must be supported by a statement of the type of parasite involved as revealed by blood examination. In Argentina physicians are forbidden to initiate anti malarial treatment until a blood examination has been made. In several Latin American countries the population and particularly those resident in endemic zones may be required to submit to a clinical or blood examination.

In most of the 25 countries covered by this survey, the authorities responsible for malaria control measures have very extensive powers of these the most important is the power to enter upon private property in order to ascertain whether malaria control regulations are being applied or, where necessary to execute in summary fashion the measures prescribed. Likewise in most countries various commercial and industrial concerns are required to provide their employees with anti

¹ See *Int. Dig. Hlth Leg.*, 1956, 7, 537. This survey will be published later as a pamphlet (price 1/9 \$0.30 Sw Fr 1—)

malaria drugs and to organize health services and give facilities for examination and treatment. In two of the countries surveyed malaria is designated as an occupational disease. Commercial and industrial undertakings are also subject to strict regulations designed to prevent the formation of breeding grounds by interference with hydrological conditions or through land excavation and there are also very often special provisions relating to ricefields.

Only the more recent malaria legislation provides for the use of residual insecticides. The majority of legal provisions relating to the use of insecticides are general in character and precise methods are left to the discretion of the health authorities. In a few countries

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Under an agreement signed between the Government of India and WHO a pilot project for trachoma control has been inaugurated at Tappal, 32 miles from Aligarh. The project will be devoted to

developing techniques and procedures for a mass control programme on the basis of an intensive study of the incidence and pattern of trachoma in the country, the factors favouring transmission, the minimum effective course of antibiotic treatment under prevailing conditions and the rates of relapse and re infection during the follow up period.

This project is based on the Gandhi Eye Hospital and the Muslim University Institute of Ophthalmology at Aligarh. It will be carried out under the guidance of the Indian Council of Medical Research and under the joint auspices of the Indian Government and WHO.

Mecca pilgrimage

Seven hundred thousand pilgrims participated in the pilgrimage to Mecca in the Year of the Hegira 1374 (1955 A D). Many of these pilgrims made long voyages from their homes to the Hedjaz and some came from far distant countries such as Thailand and Indonesia. Despite the very large numbers involved, the Saudi Arabian health administration was able to report on 4 August to WHO that the entire pilgrimage was free of infection.

These facts together with other details of the Mecca pilgrimage, are included in the supplement to WHO's *Weekly Epidemiological Record* (1956, No 43 Supp 4). Thirty three states and territories complied with the International Sanitary Regulations and submitted to WHO details of the health and welfare of the pilgrims on their journeys to and from the Hedjaz.

Some of these mass movements of pilgrims were on a very large scale. Egypt for example reported that 12 ships sailing between Suez and Jeddah had made 47 voyages between 15 June and 24 July. They carried 43 118 pilgrims of whom 33 357 were Egyptians. The Egyptian El Tor quarantine station dealt with 43 932 pilgrims when on their return journeys nearly 17 000 more than in the year previous.

The close attention which is now being paid to the health of pilgrims was well

illustrated in the reports sent in to the World Health Organization under the relevant Articles of the International Sanitary Regulations. These were in some cases most detailed and included particulars of the number of cases treated and the number and causes of death in addition to the information required under the Regulations.

The Mecca pilgrimage of 1955 might be considered as an indication of the positive results which can be achieved by international co operation in the field of epidemic control measures.

Regional Nursing Congress in Mexico City

The fourth Regional Nursing Congress to be held under PASB/WHO auspices since 1949 met in Mexico City from 9 to 15 September 1956. It was organized with the help of the Mexican *Secretaría de Salubridad y Asistencia* and the Mexican Nurses' Association. The large attendance—some 600 persons in all—was made up of nurses representing the following countries and territories: Argentina, Brazil, Costa Rica, Colombia, Cuba, Chile, El Salvador, French Guiana, Guadalupe, Guatemala, Haiti, Honduras, Jamaica, Martinique, Mexico, Nicaragua, Panama, Paraguay, Peru, United States of America, Uruguay, and Venezuela. representatives of international governmental and non governmental bodies, members of allied professions and nursing students the two last named participating as observers. Miss Alicia Roca Belmont (Mexico) was elected Chairman and Miss Rebecca Flaquer (Chile) Vice Chairman.

The object of these congresses is to give members of the nursing profession in the various countries an opportunity to exchange ideas on a chosen nursing subject directly related to health services in general. The topic this year was Nursing Administration and in accordance with previous practice discussions were based largely on comprehensive documentation¹ that was

¹ Published in the 5 pliermer 1956 and later issues of the *Boletín de la Oficina Sanitaria Panamericana*.

prepared and distributed in advance of the meeting

The Congress drew up recommendations some of which are of particular interest. These include *inter alia* suggested measures for improving national nursing services by (1) creation of special nursing sections within national health administrations under the direction of suitably qualified nurses to co-operate in matters of nursing administration and training (2) use of authentic data on national resources and needs as a basis for planning nursing services (3) introduction of legislation on the nursing profession in countries where none as yet exists and (4) introduction of salary scales for professional and auxiliary nurses commensurate with level of post and training

Measures designed to make available better training facilities in nursing administration were also advocated (1) allocation of funds in national schools and associations for training programmes (2) inclusion of nursing administration in the basic training curriculum and provision of advanced courses in the subject (3) introduction of in-service training and (4) interchange of professional nurses among countries having advanced training courses

The Congress suggested that three levels of nursing training should be instituted namely practical training for staff to be working under the supervision of a graduate nurse basic professional training (pre-requisite not less than 9 years general schooling) and advanced professional training for prospective administrative staff

Ecological study of snail vectors

One of the biggest obstacles to effective *bilharziasis* control work in the past has been the lack of adequate knowledge of the natural history of snails—the intermediate hosts of the disease. This led the WHO Expert Committee on *Bilharziasis*¹ and the Study Group on *Bilharzia* Snail Vector Identification and Classification² to draw special atten-

tion to the need for ecological study of snail vectors. Without accurate data on such matters as growth rate, annual reproduction rate, life span and aestivation molluscicides cannot be effectively used and so control projects are jeopardized or made so expensive as to be beyond the resources of most countries where *bilharziasis* is prevalent. Experimental work done in Brazil and Egypt confirmed these findings. Hence the need for first priority to be given to basic research on these matters if future control work is to be fully effective.

Accordingly one of the primary objectives set for the WHO aided pilot *bilharziasis* control project started in 1953 in the Island of Leyte in the Philippines was study of the ecology of snails. The project is expected to go on for six years in all. The work done thus far has already produced very useful results and has led to a new concept of the whole problem namely that the disease can be controlled by putting the land to better use and changing agricultural practices.

The Organization recently carried this work a step further by arranging a meeting—held in Paris from 3 to 9 October 1956—of seven experts who have all done important malacological research work in the field. The pool of knowledge and experience thus gained is expected to have important repercussions on future work for *bilharziasis* control.

Their specific task was (1) to define existing knowledge (2) to examine the distribution of snail vectors as related to hydrogeology (3) to discuss important ecological aspects of the vectors directly related to the use of molluscicides (4) to discuss the relationship between the habitat of intermediate snail hosts and the habits of man and agricultural fish farming and irrigation methods and (5) to suggest suitable subjects for further field and laboratory research.

Survey of dental problems in the Americas

Following requests from a number of governments Dr Mario Chaves, Consultant in

Public Health Dentistry on the staff of the Pan American Sanitary Bureau (WHO Regional Office for the Americas) has been organizing on the spot surveys of dental services throughout the Region. Up till July 1956 he had visited Mexico, Cuba, the Dominican Republic, Brazil, El Salvador, Guatemala, Honduras, Nicaragua, Uruguay, Paraguay, Chile, and Argentina and was expected to complete the survey for the entire Region through visits to Peru, Bolivia, Ecuador, Colombia, Panama, Costa Rica, Venezuela, Trinidad, Haiti, and Jamaica. His report should be ready by the end of the year.

WHO's present policy—preliminary to a world programme for the improvement of dental health—is to collaborate with governments in drawing up realistic programmes in the five basic areas of periodontal diseases, malocclusion, oral cancer, oral clefts, and dental caries, its help being directed chiefly to questions of research, prevention, treatment and education.

The PASB is planning to give attention to prevention of caries by fluoridation of water and to the problem of the availability of professional and sanitary workers. Dr Chaves' survey will give data on such matters as the range of dental education, length of courses, number of yearly graduates, number of qualified dentists in each country, with indication of how they are located, availability of dental services for schoolchildren and for workers and their families, and dental associations—information which up to now has been generally lacking. These valuable data will serve as a basis for future long term planning. It is already clear that in many areas—and especially the rural areas—the number of dentists is quite inadequate to cope with the most essential demands and that taking account of retirements from the profession and increases in population, the yearly output of graduates is sometimes too low to maintain even the current ratio of dentists to population. It would seem that closer co-ordination of the efforts of dental schools, dentists working in public health, and dental associations will be necessary for any long range improvement.

Earlier this year Mr Franz J. Maier, a sanitary engineer on loan to PASB/WHO from the United States Public Health Service as a consultant on water fluoridation, made an exploratory trip to a number of countries in the Region where water fluoridation has already begun or is under contemplation, including Peru, Chile, Argentina, Brazil, Trinidad, Guatemala and Mexico. In conjunction with the national health authorities he surveyed the possibilities of establishing pilot plants for demonstration purposes in Brazil, Mexico and Chile. Projects of this kind would serve to guide the national public health schools in drawing up their curricula and would provide a training ground for waterworks operators, hydraulic and sanitary engineers, dentists, epidemiologists, sanitarians, and other interested public health personnel.

Notable among the recommendations made by the consultant—some of which were of general applicability and others related to the specific problems of individual countries—were those on the equipment and type of training needed and on the formulae and amounts of chemical substances required. He also advocated a number of studies and surveys as an essential prerequisite to the installation of fluoridation systems in the various countries.

Yemenite health workers complete training

The first ten citizens of Yemen to study health on an academic basis have successfully completed a year's training in sanitation and basic public health at the Hygiene Institute of Cairo on WHO fellowships. Following this training they received six weeks of practical instruction in quarantine measures under a special arrangement between the Governments of Yemen and Egypt.

On their return to Yemen in early October 1956, the newly trained health workers were assigned to posts in ports and principal cities: two were given work concerned with quarantine in the port of Hodeida, for example, and two others were attached to the staff of a new health centre which is being established

by the Government (with WHO assistance) where they will form the nucleus of a medical service and assist international staff in various activities including the training of new recruits

Up until the present time all medical work in Yemen has been done by foreign physicians assisted by unskilled personnel. A number of Yemenite students are now studying medicine abroad on WHO fellowships and will eventually take charge of health services and gradually replace the WHO personnel working in the country

WHO fellowships for Indian professors

In September 1956 five professors from India went to the USA as WHO fellows to attend a specially designed course for teachers of preventive medicine. These professors are expected to return in two years to their country and act as heads of departments of preventive and social medicine in various medical colleges. The selection of the fellows was made as usual on the basis of recommendations by the Government

The recipients of the special fellowship awards are Dr D K Ramadwar Reader in Preventive and Social Medicine Medical College Nagpur Dr B N Lingaraju Professor of Hygiene Medical College Mysore Dr Rameshwar Sharma Lecturer in Medicine S M S Medical College Jaipur Dr M L Chugh Medical Officer of Health Simla East Punjab and Dr S Henry Moses Assistant in Charge Orientation Training Centre Poonamallee Madras

Classification of snails

Malacologists parasitologists and specialists in snail borne diseases such as bilharziasis may be interested to learn that efforts are being made to obtain some measure of international agreement on the nomenclature of the African freshwater snails *Biomphalaria* and *Bulinus*

Dr G Mandahl Barth of the Denmark Akvarium has prepared a draft manuscript in which he attempts to bring order into

the present somewhat unsystematized taxonomy of these animals. The discrimination of species among the basommatophores has always presented considerable difficulty environmental and age characteristics which might appear to be of systematic importance are generally valueless while the true genetical differences may be extremely difficult to distinguish. Many discrepancies of nomenclature have arisen during the past century because of lack of understanding of the variability of the different species and misinterpretation of the original (sometimes very inadequate) description of the "type specimen". Dr Mandahl Barth however while referring continuously to the existing literature on the subject has personally examined and noted the variations of particular anatomical and conchological characters in many thousands of snails originating from localities ranging widely over the African continent and has compared not only specimens of different ages within the same population but also adult specimens from as many populations of each form as possible. He has moreover made available to the reader much of the material on which his classification is based in the form of abundant illustrations comprising enlarged photographs of three aspects of the shells and detailed anatomical drawings made directly with the aid of a camera lucida

The World Health Organization is now submitting the draft of Dr Mandahl Barth's study to a number of malacological authorities in several countries for their criticism and suggestions in the hope of arriving at an internationally acceptable classification of the Planorbidae. Should a reasonable measure of agreement be reached it is intended ultimately to publish the study with the necessary amendments in the expectation that it may serve as a guide through the intricacies of this subject for some time to come

Public health work in the Americas

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studies published in the *Bulletin* since 1954 describing the epidemiology of this disease in the African and Eastern Mediterranean regions

The contribution by M. Likar and J. Kmet on virus meningo encephalitis in Slovenia is representative of a third type of epidemiological work namely studies undertaken by research workers in national laboratories but co-ordinated internationally by WHO. The particular instance appearing here is part of a series on this tick borne disease the first three of which appeared last year. This disease has only recently been recognized in Central Europe although it may have been present for many years. It is of particular interest at the present time since it may easily be confused with poliomyelitis.

Finally another type of study is represented by epidemiological papers giving

results obtained entirely with national or private resources on diseases of extensive geographical distribution and believed to be of widespread interest. This number contains several examples of such studies either solicited by WHO or spontaneously offered by their authors for publication. They come from the USA, Yugoslavia, Hungary, Czechoslovakia and Turkey and deal with such subjects as botulism, viral and rickettsial infections, goitre, the role of birds in the spread of Q fever and poliomyelitis.

The number also contains a Bibliographical Section giving reference to material published within approximately the last year on cholera and yellow fever. This feature which is published from time to time in the *Bulletin* is designed to give as complete coverage as possible of recent publications on these and other quarantinable diseases.

published an account¹ of its history since it was first created in 1902 as a subsidiary organ of the then International Bureau of American Republics (later the Pan American Union). Dr Miguel E. Bustamante, the author, gives a comprehensive review of how the Bureau grew through more than half a century and expanded its activities until in 1954 it had emerged as a fully mature public health agency moulded in

its form by changing needs and gradually evolving ideas on the importance of public health.

He traces too, the growth of wider international co-operation through the establishment of relations between the Bureau and such other health agencies as the Office International d'Hygiène Publique in Paris and the Health Section of the League of Nations until it was agreed in 1949 that the Bureau should assume a dual role by serving also as the regional organ of the World Health Organization in the Americas.

¹ *The Pan American Sanitary Bureau—Half a century of health activities 1902-1954*. By Miguel E. Bustamante. Washington D.C. 1955 (PASB Miscellaneous Publications No. 23) 101 pages. Available also in a 60-page Spanish edition. Gratis.

Review of WHO Publications

EPIDEMIOLOGY

Bulletin of the World Health Organization 1956, Volume 15 No. 1-2

In this issue of the *Bulletin* several studies have been brought together from various parts of the world dealing with differing aspects of epidemiology. The first three articles are the outcome of systematic international work in the collection of epidemiological and statistical data.

In 1952 M. Pascua reviewed the course during the twentieth century of mortality through cancer of the respiratory system as far as its spectacular rise up to 1949.¹ In 1955 that review was continued for the period 1949-52. In the present issue the same author reviews the trends of female mortality from cancer of the breast and genital organs for nineteen countries over the years 1920-53. Similarly an article published in the *Bulletin* last year² gave the incidence of poliomyelitis throughout the

world in 1953 and summarized the available reports on the virus types responsible for outbreaks in recent years. In the second article of the issue a comparable statistical and virological study of poliomyelitis in 1954 has been prepared by A. M. M. Payne and M. J. Freyche. A third article by S. Swaroop, R. M. Albrecht and B. Grab analyses the statistics on mortality from accidents among children.

Two other papers in this issue illustrate a different type of epidemiological study undertaken by WHO, namely the surveys organized in various parts of the world for the collection of fresh epidemiological material on diseases whose prevalence is still largely a matter of conjecture in certain areas. The first of these two papers on protein malnutrition, is the third in a series of important surveys on this condition. J. Waterlow and A. Vergara deal with the problem in Brazil.

The article which follows is Dyson M. Blair's survey on bilharziasis in British West and East Africa, Nyasaland and the Rhodesias. This constitutes the sixth in a series of

¹ Pascua M. (1952) *Epidemiol. Statist. Suppl.* 5, 1.
Pascua M. (1955) *Bull. Wild Health Org.* 12, 687.
Freyche M. J., Payne A. M. M. & Lederrey C. (1955) *Bull. Wild Health Org.* 12, 595.

CORRIGENDA

Vol 10 No 9 10

DISEASE CONTROL AND INTERNATIONAL TRAVEL

Page 281 right hand column, second paragraph line 1
delete companies
insert countries

Vol 10 No 11

Page 379 right hand column third paragraph, lines 10 and 11
delete £
insert \$

Page 390 left hand column, MALARIA FIELD APPOINTMENTS, line 2, name should read
Dr S Roy Chowdhury

MEAT HYGIENE

V. E. ALBERTSEN — R. BENOÎT — T. BLOM — Phyllis G. CROFT
C. E. DOLMAN — H. DRIEU — R. I. HOOD — M. J. J. HOUTHUIS
A. JEPSEN — H. H. JOHANSEN — M. M. KAPLAN — S. O. KOCH
G. SCACCIA SCARAFONI — G. SCHMID
F. SCHÖNBERG — H. THORNTON

Since the dawn of history man has had to match his wits against two, four, and six legged creatures in a struggle for existence. Once upon a time when he won these contests he ate as much of his opponent as he could stomach. Today the idea of eating meat is so rude and indigestible a form is abhorrent to most people with the development of agriculture and animal husbandry. However mankind has come to depend increasingly for strength and sinew upon the cooked flesh of tamed herbivores. But the widespread use of such animals for food has brought in its train many problems. Meat is a perishable commodity and its poor handling, whether by the slaughterer, the retailer, or the housewife, is likely to result in ill health and wastage. The farmer too has a part to play in providing the consumer with safe and wholesome meat. He is responsible for the health and care of the animals before slaughter.

This comprehensive and well illustrated book contains contributions from meat hygiene experts in many parts of the world. Besides dealing with the practical health problems of the meat industry from the ante mortem care of slaughter animals to the hygienic processing and marketing of meat and the sanitary disposal and reclamation of by-products it covers such wider aspects of meat hygiene as the epidemiology of meat borne diseases, the training of meat inspectors, the current meat hygiene practices in a number of European countries, and the special meat hygiene problems in the tropics. In addition much detail—on laboratory techniques for the detection of meat borne diseases, on meat hygiene regulations in various countries, and on design of abattoirs—is given in annexes. The book ends with a useful bibliography classified according to the broad subjects under which the various contributions are grouped.

This monograph includes a number of the papers read at the WHO-FAO Seminar on Meat Hygiene held in Copenhagen in February 1954, as well as a review of the salient features of the discussions. These papers have, where necessary, been expanded or brought up to date, and several new articles have been contributed. The monograph is not intended as a universal guide to meat hygiene; its aim is to throw light on recent advances and problems in the many and diverse aspects of this vast subject for the benefit of the responsible authorities and students in public health and in veterinary science.

527 pages 106 illustrations 2 colour plates bibliography index (*In press*)

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MALARIA :

Some WHO publications

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by Sir Gordon COVELL G R COATNEY John W FIELD & Jaswant SINGH
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MALARIA CONTROL

Bulletin of the World Health Organization 1954 Vol 11 No 4-5 382 pages 66 figures 78 tables
[Articles in English or French with detailed summary in the other language]
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This number makes a valuable contribution to the literature on malaria. It describes the new strategy in malaria control since the development in mosquitos of resistance to insecticides—a strategy by which early eradication of malaria over vast regions may be anticipated. The work provides a general picture of the present situation with regard to control by means of residual insecticides illustrating the success and limitation of the method and the problems it gives rise to in many countries and territories. Other articles deal with the ineffectiveness of DDT spraying in the Jordan Valley, the effects of suspended residual spraying and of imported malaria in the USA, the resistance of Anopheles sacharawi to DDT and to chlordane and the possibility of resistance to DDT by Anopheles albimanus.

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